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THE ACCOMMODATION

OF

INTELLECTUAL PROPERTY LAW

TO

THE INTRODUCTION OF NEW TECHNOLOGIES

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THE ACCOMMODATION OF INTELLECTUAL PROPERTY LAW TO THE INTRODUCTION OF NEW INFORMATION TECHNOLOGIES

Anne W. Branscomb

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THE ACCOMMODATION OF INTELLECTUAL PROPERTY LAW TO THE INTRODUCTION OF NEW TECHNOLOGIES

Anne W. Branscomb

I. INTRODUCTION

Intellectual property law in the United States is a blending of overlapping, underlapping, and often conflicting theories of law. The coverage includes copyright, patents, trademark law, and export control -- all covered by federal statutes -- and trade secrets and various interpretations of tort law protected by state statutes and/or judicial interpretations of the common law based upon equity, tort, and contract law. Although such a rich legal heritage protects a great number of innovations in both hardware and software, the new information technologies as they are introduced, put a strain on established principles as each tries to find a niche in the established spider web of protection.

The basic conflict of principles evolves from the Constitution itself and arises from the society in which it is imbedded -- a society which purports to be open and permeable with shared resources, while practicing the principles of management of scarcity through the choices of the marketplace. Nonetheless, both the First Amendment and the patent and copyright clauses in Article II, Section 8, of the Constitution purport to increase the flow of knowledge within an open society. How each legal principle works out in practice is not necessarily consistent with others which purport to both protect the public and to increase the flow of information while compensating individual productivity which contributes to the public good.

Copyright law is based upon the principle of disclosure of information which is distributed in hard copy in exchange for a protected monopoly for a limited period -- in the new act for the lifetime of the originator plus fifty or seventy-five years depending upon time of disclosure.

Patent law is based upon establishing a monopoly in all manufacture of a product or a process containing originality of concept for a period of seventeen years, renewable for another seventeen.

The trademark laws are designed to identify the origin of a product, so that the public may know from whence it came in order to rely upon a known quantity or to identify the manufacturer or distributor of a defective item sent to market.

The trade secrets laws operate upon an opposing principle protecting only information which is not disclosed to the public but licensed to users under strict prohibitions against disclosure to third parties. Export Control is based upon the notion that a nation-state has a proprietary interest in the unauthorized disclosure of information which may have an adverse impact upon its national security or upon its economic health.

Export control is based upon the notion that a nation-state has a proprietary interest in the unauthorized disclosure of information which may have an adverse impact upon its national security or upon its economic health.

So called "neighboring rights" have developed to cover the lacunae in the above legal principles which failed to protect those things which must by their nature be disclosed, eg. unique forms of entertainment and advertisement, but which do not logically fall within the confines of a copyrightable, patentable, secretable, or trademarkable intellectual product.

Any intellectual product which fails to find a niche within the coverage of any of the above legal principles may be protected by explicit contract. Standard contract clauses have been developed to protect the legitimate commercial interests of intellectually productive individuals and companies. Many of these have been embodied in the practices promulgated by the professional societies of musicians, actors, and other performing artists.

Most of these principles have evolved slowly over a long period of time dating back to the Constitution itself, and to the evolving coverage of federal legislation. Many laws were enacted by state legislatures to protect the trade secrets of their burgeoning new industries. Pioneering efforts, in such states as New York and California, attempted to cope with the new technologies of photography and videography which permitted an invasion of the private space of one's persona and the unauthorized taking and use of a "copy" of one's visage and activities.

Thus chapter 132 of the New York code, enacted in 1903, was an innovative piece of legislation designed both to protect its citizens from invasion of privacy and to protect the interests of its actors and actresses from the unauthorized use of their "intellectual property", including their skills and personal appearance, without compensation.

The weaving of the legal fabric of a nation is a slow process requiring much thought and negotiation, much confrontation and compromise between what is desirable and what is acceptable. The advent of new technologies has always created problems for society, most of which have taken several generations in which to accommodate historical values with current potential.

However, the speed with which new technologies are now being introduced accelerates while clogging the judicial system with litigation of a complex nature which lawyers and judges have not been trained to understand. An almost unbearable burden has been placed upon the legislative system to respond in an intelligent and healthy manner to the changes in economic activity and to alleviate the potential for injustice and abusive behavior made possible by use of technologies which were not available when legislation now in place was enacted.

The new technologies of computers, satellites, optical fibers, reprography, and videography are weaving a web of communications capability around the globe which permits the interchange of messages for a myriad of purposes, some beneficial and some deleterious. More people are communicating for more purposes than ever before in the history of mankind. The opportunities for expanding the marketplace for U.S. intellectual products are manifold as are the opportunities for our competitors to buy, beg, borrow, or steal, what we would like to sell to others.

While we are engaged in an exercise of self analysis, however, we must keep in sight the fact that the United

States was not so long ago a developing country itself (as recently as the 19th century). A great deal of the content of the educational system in the 19th century was based upon textbooks, the contents of which were "borrowed" from the British publishers without compensation, because the first U.S. Copyright law protected only native authors. Thus we must lend an understanding, if not sympathetic, ear to third world countries like Brazil who seek to emulate our success by borrowing computer software without compensation.

The major concern today is to balance the interests between what should be proprietary for controlled use and compensation or free to flow uncompensated among all countries of the world either because it is technologically uncontrollable, or because it is desirable to expand the knowledge base of the entire global community. Although U.S. firms currently write more than 75% of the world's supply of computer software, U.S. leadership of the world is threatened technologically in such areas as automobiles and consumer electronics. There may come a day the U.S. will need to have access to innovative intellectual work products coming from other countries in order to infuse new knowledge into a declining manufacturing infrastructure. Intellectual Property law based upon principles of reciprocity seem likely to serve an enlightened self interest in the U.S. domestic market as well as in the world economy.

It is useful to remember also that the printing press itself was a new technology, and the Statute of Ann,,which first established proprietary rights in published manuscripts, was enacted by the British Parliament in 1709, post dating the advent of the printing press by more than 250 years. It is also useful to remember that the newer technologies of computers, satellites, and reprographic machines, have as much potential for assisting us in the fair distribution of the income from the productivity of intellectual efforts as they have for the uncompensated borrowing and distribution of intellectual products.

Computers have a marvelous memory for tracking use and "intellectual audit trails". Satellite signals can be encrypted by those who wish to protect their work products from piracy during electronic distribution. However, we must have the patience to sort out what the new electronic environment really means in terms of our personal, collective, national, and global interests before we move too rapidly either to impede or speed up the flow of such products in our national and international marketplaces.

II. CASE HISTORIES OF ACCOMMODATION TO NEW TECHNOLOGIES

The legal system has accommodated to the advent of new technologies in a variety of ways, (1) by self help within the economic institutions affected, (2) by expansion of the common law based upon fair play and equity, (3) by expanding judicial interpretation of existing law, (4) by generic legislation (eg. patents, copyright, right of privacy, export control, misappropriation), (5) by amendment of the current statutes, (6) by a general revision of the basic law--about every 100 years, and (7) by specific _suis generis_ legislation addressed to the particular characteristics of a specific technology.

The purpose of this section is to review the manner in which the legal system has adapted to the changing needs of the U. S. economic and social system.

A. Printing Press

The Statute of Ann in 1709, the first copyright statute, was enacted in response to the new technology of the printing press. Manuscripts, which were laboriously copied by hand (the meaning of "manuscript" was literally "written by hand") could be set in type, and many copies could be published and widely distributed. Thus it was _suis generis_ legislation, which followed not hot upon the heels of the development of

Gutenberg's printing press in 1436 but more than 250 years later. For the 150 years prior thereto, the Stationers Company consisting of members of the book trade -- printers, bookbinders, and booksellers -- had received a royal charter in 1557 and, thereafter, they held a monopoly on printing and publishing. Effectively, the Stationers Company granted a license to publish (eg. to copy) a work and protected the piracy of one member from another. The granting of the license was registered in the books of the Company. The grant was made in perpetuity and could be transferred.

The U. S. Act closely followed the provisions of the Statute of Ann and was enacted in 1790 (1 Stat. 124), shortly after the birth of the nation. Such legislation responded to the felt need for copyright and patent protection expressed in the constitutional convention and constitutionally authorized in Article I, Section 8, of the Constitution. Twelve of the thirteen colonies had enacted copyright laws between 1783 and 1786. However, the first enactment in the New World was a statute of the General Court of the Massachusetts Bay Colony in 1672 which considerably predates the Statute of Ann. Its provisions were as follows:

"In answer to the petition of John Usher, the Court judgeth it meet and order, and be it by this Court ordered and enacted, that no printer shall print any more copies than are agreed and paid for by the owner of the said copy or copies, nor shall he nor any other reprint or make sale of any of the same, without the said owner's consent upon the forfeiture and penalty of treble the whole charges of printing, and paper etc of the whole quantity paid for the owner of the copy, to the said owner of the copy, to the said owner or his assign."

The basic underlying philosophy of the colonial statutes, as stated in their preambles, was four fold: 1) to establish the right of the author, 2) to encourage learning, 3) to regularize trade in books, and 4) to discourage monopolization of the trade.

Thus the first suis generis legislation was very particularized to the printing press and designed to protect a fledgling trade in book publishing in the Colonies. Certainly that encouragement of book publishing and the circulation of books, newspapers, and letters, among the early revolutionary visionaries can be readily observed to be intimately connected to the birth and early development of a new nation.

Although the Statute of Ann protected books only, as did the Massachusetts Bay Colony act of 1672, the first copyright Act of the U. S. Congress expanded the protection to "any map, chart, and book or books already made and composed, and not printed or published,..." (1 Stat. 124, 1st Cong., 2d Sess., c. 15, Section 1.). Thus the hanging of ornaments on the Christmas tree was apparent from the very beginning of the U. S. legislative framework. Indeed, maps and charts might have been considered more important even than books in a country in which pioneering the frontier was a major enterprise and surveying the vocation of its first President.

The penchant for modification of the basic Act rather than enactment of suis generis legislation persisted. The Copyright Act was modified to include "any historical or other print" in 1802 (2 Stat. 171, Section 2), to include musical compositions, cuts, prints and engravings in 1831, (4 Stat. 43, Section 1) to include photographs in 1865, and to include paintings and drawings intended as works of fine art, in 1870.

B. Photography

1) Constitutionality

Burrow - Giles Lithographic Co. v. Sarony
111 U.S. 53, 54 S. Ct. 279 (1884)

The question arose in this case whether or not a lithographic reproduction of a photograph of Oscar Wilde could be copyrighted under the pertinent statute which purported to protect "books, maps, charts, dramatic or musical compositions, engravings, cuts, prints, paintings, drawings, statutes, statuary, and models or designs intended to be perfected as works of fine arts." The Act had been amended to cover photographs under Section 4952 of the Revised Statutes. The argument of the infringing party was that a photograph was not a writing of which the producer is an author and, therefore, could not be made subject to copyright protection.

The Court stated: "The only reason why photographs were not included in the extended list in the Act of 1802 is, probably, that they did not exist, as photography, as an art, was then unknown, and the scientific principle on which it rests, and the chemicals and machinery by which it is operated, have all been discovered long since that statute was enacted. Nor is it to be supposed that the framers of the constitution did not understand the nature of copyright and the objects to which it was commonly applied, for copyright, as the exclusive right of a man to the production of his own genius, or intellect, existed in England at that time, ...We entertain no doubt that the constitution is broad enough to cover an act authorizing copyright of photographs, so far as they are representatives or original intellectual conceptions of the author." The court then found the necessary "originality, of intellectual production, of thought, and conception on the the part of the author" to sustain the amendment encompassing photographs under the rubric of copyright law.

2) Privacy and Right of Publicity

A corollary to the advent of photography as a protected right under the copyright laws was the development of a concept of the right to privacy to prevent unauthorized invasion of one's personal space (eg. one's photographic image) by a photographer. In 1890, the later Justice Louis Brandeis and his colleague, Samuel Warren, argued in the Harvard Law Review that individuals should be able to prevent photographers from taking their images from afar, preserving them, and then selling them to publishers. When the photographic technology first developed it was necessary for the subject of the photography to go to a studio and pose for copying. Thus consent was an *apriori* requirement to making the photograph. However, as the technology developed, photography without the consent of the subject, became quite easy to accomplish. Thus the question arose, what rights would the aggrieved party have who objects to the unauthorized use of his/her image with or without compensation. Certainly, the question of compensation became apparent with the use of such photographs for advertising purposes.

The authors of this article, offered a novel legal theory of the right of privacy based upon the theoretical foundation of an analogy to the copyright protection afforded authors of published materials. Thus the common law principles of a right to privacy were established. A substantial body of law has been erected over the almost 100 years since the publication of the article. The Brandeis-Warren article on the Right to Privacy was a step forward in continuing legal effort to control eavesdropping and piracy facilitated by newer technologies as they become available.

New York, in 1903 (Ch. 132 N.Y. Laws), was the first state to to enact protective legislation. However, New York City was, and is, a major center for the performing arts and New York was responding purposefully to a concern for the creative talent which contributed substantial economic productivity within the state. At the time of initial enactment of the laws protecting a right to control publicity deriving from the capture of one's image on a photographic plate, motion pictures had not yet become a major concern but that was to follow fast upon the heels of the still picture.

C. Player Piano

White-Smith Music Pub Co. v. Apollo Co.
209 U. S. 1, 28 S. Ct. 319 (1908).

The difficulty of accommodating the language of the statute to new technologies became quite apparent with the advent of the player piano. Music could be generated by punched holes in a paper tape which was fed to the player piano. The question arose whether or not this form of reproduction was covered by the Act and whether or not the performance by a machine could be covered as an act of creativity on the part of a human being. Reluctantly, the Supreme Court denied copyright protection to the publisher of the sheet music of "Little Cotton Dolly" and "Kentucky Babe Schottische".

After reviewing all the existing judicial interpretations and finding none of them to support the plaintiff's suit for infringement, the Court made it clear that copyright in the United States relied solely upon a statutory basis. Thus the Court found that the musical notes which were rendered by the player piano and heard by the human ear were "not a copy which appears to the eye". Since even those who made the player paper rolls could not read them as music, the Court decided that a rendering which could only be read by a machine was not covered by the copyright legislation then in place. The Court determined that its reasoning would apply equally to a performance by a music box, or "graphophone" both of which were familiar to the Congress at the time of enactment of the legislative amendments which covered sheet music. The justices then pronounced that what was protected was "a written or printed record in intelligible notation." Justice Holmes concurred in the opinion of the Court but lamented that in principle mechanical reproductions of a creative collection of sounds ought to covered as a "copy" but would require further legislation to accomplish that desirable goal of public policy.

D. Phonograph Records

1. Music Recordings

H.Rep. No. 2222, 60th Cong. 2d Sess,
February 22, 1909.

Indeed, the reaction to the White-Smith v. Apollo case prompted a full discussion of the desirability of legislating protection for both piano player perforated rolls and phonograph records. This was a major issue in the Copyright Revision of 1909, which, although it followed the Supreme Court Decision, had been started during the earlier adjudication and appeals from lower courts. The House report which accompanied the bill, however, clearly stated the intention of Congress to extend the monopoly rights of the copyright owner only over the manufacture and use of the new technological means of disseminating the information and not over the mechanical reproductions themselves.

Therefore, the question of whether or not distribution of records and motion picture tracks constituted "publication" continued to plague manufacturers and distributors. The industry retired into the view that such distribution did not constitute "publication". Therefore, the copyright owner was not divested of the original right to control copying. This fiction persisted as a method for perpetuating the common law copyright in the creative work product despite the obvious weakness of the logic. However, the reasoning retained the dividing line between the musical composition itself and the performance of the music on the recording device.

Although copyright in musical recordings was extended in the 1909 revision, fear of exclusivity in the recording industry led to the enactment of a compulsory license [Sections 1 (d) and 1 (e)]. At the time of the enactment the recording industry was effectively centralized in the hands of three companies, RCA-Victor, Columbia, and Decca. However, the proliferation of recording companies, as well as the proliferation of home recording devices leaves in doubt the efficacy of a compulsory licensing system which funnels so much control over the industry through a single negotiating agency.

Piracy of musical recordings is a major international problem as the electronic devices through which such reproductions can be made is now available all over the globe. A flourishing industry for low cost tapes exists in several Oriental cities, including Singapore and Hong Kong.

2. Voice Recordings

King v. Mister Maestro, Inc.
224 F. Supp. 101 (S.D.N.Y. 1963).

The case of a recording of Martin Luther King's "I have a dream...." speech brought into sharp debate the question of whether or not copyright of the underlying manuscript from which a lecture was given (which was permitted protection under the Act) would protect the "unique literary and oratorical style" with which Dr. King delivered his speeches and which was captured on the sound recording which was the subject of the litigation.

The federal court in New York found the equities and the law to coincide in order to protect Dr. King from the unauthorized distribution of sound recordings of his speech for commercial gain. In order to do, it was necessary to rely upon the same illogical fiction that the rendition of a speech to an audience of hundreds of thousands, and the coverage of such speech by the news media to millions more, did not constitute publication. Thus the judicial system accommodated itself to what seemed fair to the litigants, as well as the practices then relied upon by the electronic media, for protection of their distributed products.

E. Juke Boxes

H. R. 83, 90th Cong. 1st Session (1967)

An exemption was enacted in the 1909 Act to exclude "coin operated machines" from the payment of royalties on recordings [Section 1 (e)]. Despite lobbying efforts to end this exemption from the compulsory license, it remained in force until the copyright amendment of 1967. The industry is now declining from its vigorous life in the thirties and the forties. In 1967 less than a half million juke boxes were handled by less than 10,000 operators grossing roughly $1000 per year. Still the new Act included a compulsory license [Section 116 (b) (1) (A)] requiring a royalty of $8.00 per year for each coin-operated phonorecord player.

This is in marked contrast to the now flourishing video cassette leasing industry. Although not coin-operated, there are over 14,000 video cassette outlets across the country, and the market for the lease of such video cassettes is expanding both in the domestic and international markets. No royalties are paid for the use of the video recordings. Thus the "first sale" doctrine, which prevents motion picture producers from collecting royalties on the subsequent rental of videocassette, seems at odds with the underlying philosophy of the juke box compulsory license, although neither is based upon monitoring of actual "use".

F. Audio cassettes

Goldstein v. California,
412 U. S. 546 (1973).

The problem of the separation of the copyright in the original musical composition and the recording of the particular performance persisted. Such states as New York and California, with substantial interests in protecting performances as such, proceeded to enact legislation which would protect the interests of their citizens and native industries. Under the California statute [Section 653h of the California Penal Code], an action was filed challenging the constitutionality of a criminal statute making it a criminal offense to pirate sound recordings, a practice which had become widespread.

In the Goldstein case petitioners had taken an original recording, reproduced it, and marketed it under their own label in competition with the original recording and without payment of royalties or other compensation to the producer of the original recording or of the performing artists or to any of the various trust funds set up for their benefit. The complete defense of the offenders was that the California statute was in conflict with the federal copyright statute and preempted thereby. Although the federal copyright statute was amended while the case was pending [Pub Law 92-140, 1971, Section 3], the amendment specifically excluded any retroactivity back to recordings "fixed" prior to February 15, 1972. Therefore, the question before the court was one of whether or not to permit dual systems of protection. The court observed:

"Although the copyright clause thus recognizes the potential benefits of a national system, it does not indicate that all writings are of national interest of that state legislation is, in all cases, unnecessary or precluded. The patents granted by the States in the 18th century show, to the contrary, a willingness on the part of the States to promote those portions of science and the arts which were of local importance. Whatever the diversity of people's backgrounds, origins and interests and whatever the variety of business and industry in the 13 colonies, the range of diversity is obviously far greater today in a country of 210 million people in 50 states. In view of that enormous diversity, it is unlikely that all citizens in all parts of the country place the same importance on works relating to all subjects. Since the subject matter to which the copyright clause is addressed may thus be of purely local importance and not worthy of national attention or protection, we cannot discern such an unyielding national interest as to require an inference that state power to grant copyrights has been relinquished to exclusive federal control."

Thus the states had been used as as testing ground for innovation in the development of intellectual property laws which would ultimately become adopted by federal legislation. Nonetheless, the 1976 Act abandoned this process to establish a national statutory copyright protection scheme which would preempt state legislation and delete a common law copyright prior to publication. The Copyright Act of 1976 does not necessarily preempt all of the trade secret legislation which has a rich and efficacious history, but there are unanswered questions concerning the overlap which may prove troublesome. Creators of computer software attempting to preserve their rights under the trade secrets laws may lose them if they register their software with the Copyright Office.

G. Movies

Harper Bros. v. Klaw, 232 F. 609 (1916).

The advent of motion pictures presented discrete difficulties for the application of the copyright laws to a medium which could not have been anticipated by the earlier enactment in the same manner, as Justice Holmes observed that recordings could not have been contemplated by the original act, because the technology did not exist at the time from which the need for protection could be extrapolated.

The responsibility has fallen to a breed of innovative lawyers whose sole task has been to devise contract clauses which will protect their clients. Such a clause was the subject of litigation in Harper Bros. v. Klaw. The intellectual product in question was General Wallace's 1899 popular novel, "Ben Hur", which had been adapted for stage representation through the urging of Harper Bros., the publisher of the Wallace manuscript. The mission was accomplished and the copyright was registered in the name of the publisher with the proviso that any assignee would have no right to change the text or manner of performance "in a material way".

The contract also provided that what was bargained for was "the exclusive right of producing such dramatic version on the stage [emphasis supplied]". After about 14 years of satisfactory relationship in the production of the dramatic rendition and the collection of royalties, both parties determined that an optimum time had arrived to transfer the property over to video form and to produce a motion picture.

The court held that the entire history of the arrangement between the parties was "...not only inconsistent with, but repugnant to, the thought of making 'movies' out of Ben Hur." Therefore, the New York court left the parties each with an injunction against the other to bargain for the motion picture rights. Thus in the absence of any statutory authority to guide the courts, the parties were left to devise a satisfactory marketplace solution to their problem.

H. Broadcasting

1. Radio

Buck v. Jewell-LaSalle Realty Co.,
283 U. S. 191 (1931).

Twentieth Century Music Corp. v. Aiken
422 U. S. 151, 95 S. Ct. 2040 (1975).

Although in the case of the player piano and phonograph records, the courts seemed quite unable to find a niche for the new technologies under the rubric of copyright protection, they had no difficulty in finding that the owner of a hotel who retransmitted music from the radio into the rooms of his customers was guilty of a copyright infringement. The court held that amplifying the broadcast via loudspeakers did constitute a performance of the underlying musical composition. In a subsequent case a lower court decided that it did not matter whether the broadcast was heard in the private bedrooms or in the public rooms -- same result, a copyright infringement. In both cases the original broadcaster was not licensed to broadcast the musical composition in question.

However, many years later the Court reversed itself following two intervening cases involving cable television [see infra. p.37-40]. Noting that the futility of trying to control radios in countless small businesses and restaurants like "George Aiken's Chicken" all around the country,:

"The practical unenforcibility of a ruling that all of those in Aiken's position are copyright infringers is self evident. One has only to consider the countless business establishments in this country with radio or television sets on their premises -- bars and beauty shops, cafeterias and car washes, dentists' offices and drive-ins -- to realize the total futility of any evenhanded effort on the part of copyright holders to license even a substantial percentage of them."

The Court further noted the inequities which would become apparent, since the radio listener in the small owners of business establishments could only protect themselves by turning the radio set off -- a consequence which would have deleterious consequences for the radio broadcaster as well as the holders of the copyright. The Court also reasoned that a holding that Aiken "performed" the music would lead to a multiple payment (if enforceable) which would be out of balance to the economic protection required to meet the dual purposes of the Act -- to secure a fair return for an a author's creative labor and to stimulate artistic creativity for the public good. Thus the courts recognized the inefficacy of legal sanctions which cannot be carried out in practice given the propensities of the consuming public. This is a practical recognition which runs through a number of later introductions of new technology, despite what appears to be an an infringement upon the normal expectation of remuneration for creative output.

2. Television

1961 Copyright Regulations

Loew's Inc. v.Columbia Broadcasting System [131 F. Supp. 165 (S.D. California 1955) aff'd _sub nom_. Benny v. Loew's, Inc. 239 F. 2d 5323 (9th Cir. 1956) aff'd _per curiam_ by an equally divided court, 356 U.S. 43 (1958)]

Columbia Pictures Corp. v. NBC, 137 F. Supp. 348, 350 (S. D. Cal. 1955).

Twentieth Century-Fox Film v, MCA, Inc. 715 F. 2d 1327 (9th Cir. 1982).

Elizabeth Taylor v. ABC, Inc. et al., 82 Civ. 6977, (S.D.N.Y. 1983)

As the publishers and producers of the dramatic production of "Ben Hur" were left by the courts to work out their respective interests in the motion picture production, so have most of the problems related to the advent of television been left to negotiation and agreement between the parties. The role of the courts has been as arbitrator when the parties were unable to agree upon the proper construction of a clause.

Because of the reliance of both motion pictures and television upon published material, and of the television industry upon reruns of motion pictures, much of the litigation has revolved around what subsequent rights were allocated by the original contract for the transfer of proprietary interests in the story, and what "paternity" rights the author might exert over subsequent versions or retain over the "integrity" of the original intellectual property.

Many of the early cases were directed toward the interpretation of contract provisions as well as a determination of how much could be copied of a prior production or how much could be copied of a performance which the performer considered proprietary. For example, parody, which is a new production "which mimics and renders ludicrous the style and thought of an original work", is not considered to infringe the earlier copyright unless it becomes commercially competitive with it, eg. Jack Benny's parody of "Gaslight" entitled "Autolight".

This decision was substantially limited by the same court in a subsequent case involving Sid Caesar's "Your Show of Shows" which did a parody of "From Here to Eternity." Here the Court held that parody is a socially accepted and valuable art form meriting a "fair use" exemption from the copyright liability if it is not the functional equivalent of the original. These cases do not involve any intrusion of new technology except that the parody can be shown simultaneously to a larger number of in the audience and, therefore, may displace an audience for the original product.

More direct plagiarism is, of course, an infringement. The issue is more complex when an idea is borrowed, yet the work product may be similar but independently produced. Unlike, the patent laws, where a creator may monopolize a concept for a product or process, if first to register the patent, under the copyright rubric, the ideas upon which a creative artistic work are based are not copyrightable, only the independent expression of those ideas in an artistic product is protected. For example, although "Star Wars" and "Battleship Galactica" have a similar theme, they are not so similar that there is a prima facie case against the production which follows the original.

An area in which the litigation is likely to increase is that of the use of the historical circumstances of the life of an actor or actress, who has created a valuable commercial product based upon the creative output of that life, in a "docudrama", without the consent of the original person. This was the case with the action filed by Elizabeth Taylor against ABC to obtain an injunction against the airing of a television program about her life. As the production was neither documentary nor biographical but a fictionalized version of her life, she claimed that ABC and the producers of the docudrama were misappropriating her right of publicity under both the New York Civil Rights Law and New York common law. She alleged that they were further engaged in a violation of the Lanham Act infringing upon her protectable service marks and trade names and that they were engaged in unfair competition with her own work products. The suit was withdrawn, but the docudrama was not produced.

The action is worthy of note, not because it involves an issue uniquely precipitated by the availability of a new technology. Indeed, the same borrowing or copying of a person's life and times was engaged in by Shakespeare in most of his historical plays. But unlike Shakespeare who drew upon historical fact and added his own fancy, the ABC production was engaged, according to the allegation, in a direct competition with products in which Elizabeth Taylor might be engaged herself selling her own intellectual product. Indeed, there is an explicit question of the integrity and accuracy of a presentation about a person without the involvement or consent of the person.

The noteworthy aspect of this type of case is based upon the projection that the new technologies currently being employed by the video industry are making it easier and easier to capture both the actual image or a simulated image of an actor or actress, or a public figure, and to mutilate, or transform the presentation into something quite different, through electronic editing. Moreover, the projections of the use of holography and state of the art capture of images are predicted to make it possible, for example, for "Star Wars" to continue to be produced using the images of the younger actors and actresses in the earlier versions even though they may have aged too much to continue to play the parts, or even, for example, to start remaking Clark Gable or "Tarzan" movies using the appearance of the original actors. Thus the questions of what is appropriate for borrowing, or recycling, re-use, or mis-use, and who controls that secondary use, will likely increase in the video industry, as electronic editing increases and computer generation of images becomes a mature technology.

I. Videotapes

Sony Corp. v. Universal City Studios,
__ U.S.__(1984) 104 Sup. Ct. 774.

U. S. v. Ralph E. Smith d/b/a Televideo, Corp.
(5th Cir. 686 F. 2d 234 (1982)

Television programs, for many years, could not be copied by consumers. As a consequence, the law assumed that the distribution of a video program was not a public performance and the property was merely licensed for a limited distribution. Indeed, as late as the early seventies it was not normal practice for video programs to carry a copyright notice. However, as the technology of videorecording off-the-air progressed and videocassette recorders (VCR's) became more plentiful on the marketplace, it became more and more obvious that a lacuna in the law existed concerning the legality of such recording of what were by then clearly marked as copyrighted materials and registered with the copyright office as such. Indeed, by the 1976 Act, a special exemption had been written into the law to protect the off the air recording of newscasts for archival purposes [Title 17 U.S.C.A. Section 108].

The Fifth Circuit had no difficulty in finding a copyright infringement when Ralph E. Smith, doing business as Televideo Corp. taped off the air motion pictures, sporting events, and television programs for mass distribution to offshore drilling platforms of oil companies. However, the courts had more difficulty in finding Smith guilty of a felony and reversed the conviction of the lower court.

The court commented:

"The legislative history of the NSPA Section 2314 -- together with the lessons to be learned from passage of the 1966 Copyright Act and the recent Piracy Act -- provide no basis for this Court to find the activity of defendant Smith to be in conflict with the provisions of Section 2314. Indeed, a contrary result is mandated. Of course, this is consistent with a logical and common sense reading of the NSPA's statutory language. It would be a major encroachment upon Congress' lawmaking prerogative to say the activity falls within section 2314."

Nonetheless, the court offered the suggestion that the penalties provided in the Piracy Act were insufficient to cope with the problem of a worldwide industry which in 1980 already grossed over a billion dollars. Therefore, the misdemeanor conviction and fine of not more than $25,000 could be considered by the industry to be a normal hazard to what is otherwise a lucrative business. The economic interests in videocassettes is increasing rapidly. By the spring of 1984 a typical movie earned 13% of its revenues from cassettes and disks, and this without any royalties from rentals, which constitute 70% of the usage by video cassette recorder owners.

The more complex problem from a legal standpoint was the question of whether or not taping off the air for personal use constituted an infringement of the Copyright Act. The lower court which addressed the question found for the consumer that taping for later use by an individual in their residence with no commercial intent was a legitimate "fair use" of the copyrighted product. However, the Ninth Circuit disrupted the expectations of the VCR manufacturers and the consuming public by finding a technical violation of the copyright laws and suggesting that a flat fee on top of the purchase price of videocassettes might be a reasonable solution to the problem. Although Congress considered such legislation, it has not passed. Furthermore, it is not an entirely logical response, since the videocassette may be used to record material which is not copyrighted and not delivered for retransmission by cable television systems for a fee.

Nonetheless, the decision, which resolves the question of a legal holding which would be completely unenforceable without a stringent monitoring of private use of television, has done so by expanding the definition of "fair use" to include the copying of an entire intellectual product so long as no commercial use is contemplated. This contravenes the philosophy of the "fair use" doctrine which contemplated only such uses as were consistent with the desire of the writers of the Constitution to promote the dissemination of artistic and creative talents which would add to the body of knowledge upon which our economic productivity was based.

Most uses, not all by any means, of videotaped cassettes for personal use are of entertainment products which might otherwise be purchased, leased, or seen in a local theatre. Therefore, although the taper does not violate the copyright owners' prerogatives by direct commercial competition with the original product, such taping does displace another use of the product which would bring compensation to the creator and distributor.

This is a problem which can only grow worse, rather than better, as the market for motion picture and television distribution is worldwide. Delivery directly via satellite will become more prevalent as Integrated Services Digital Networks become available, and the opportunities for interception and off the air recording will increase rather than diminish. Furthermore, the efficacy of a domestic law without extraterritoriality or reciprocity in the country in which the violation takes place may prove troublesome. This will be especially true of direct broadcast satellite where the country of origin intends a government supported distribution of television programs or an advertiser supported service for which no subscription is required. In such cases the economic cost of encrypting the program and requiring consumers to bear the financial burden of acquiring a decoder would be contrary to sound public policy.

As Justice Blackmun's agonized dissent in the Sony v. Universal Studios case suggests, the making of a single unauthorized copy is prohibited under the copyright laws as written in 1976. Very specific exceptions are listed in the Act for permitted exceptions to this general rule. Taping broadcasts off the air was not one of them, because taping was not a big factor at the time. Indeed, an extensive study prepared for the Copyright Office in 1960 by Professor Latman, a learned legal scholar, found no reported case supporting the existence of an exemption for private use.

Thus the Supreme Court has effectively reversed a long line of authority concerning the definition of "fair use" because of the accepted practices of the consuming public. The sense of fair play among citizens would not permit the kind of surveillance which would be necesssary to hold otherwise. It does not solve the economic problems which it exacerbates, and that solution will have to await the determinations of Congress after full deliberation of the political, social, and economic consequences. The Sony case, therefore, represents a "band-aid" treatment of a festering and growing wound to the creators and distributors of video products.

J. Cable Television

Fortnightly Corp. v. United
Artists Television, Inc., 392 U. S.390 (1968),
rehearing denied, 393 U.S. 902.

CBS. v. TelePrompTer Corp.
415 U. S. 394 (1974)

Orth-O-Vision, Inc., v. Home Box Office, 474 F.
Supp. 672 (S.D.N.Y. 1979).

The new technology of cable television created several decades of problems for the Federal Communications Commission and the Courts. Only in recent years has the cable industry received the attention of federal legislators, as the industry has reached penetration of approximately half of American homes. Cable television, which started as early as the late forties, was a way of capturing and amplifying a television signal in areas where reception was impaired by distance or troublesome terrain. Consequently, the questions arose: (1) whether or not the Federal Communications Commission had any jurisdiction over cable (indeed, on first impression the FCC decided it did not), (2) whether or not the television broadcaster whose signal was being retransmitted or amplified could or should have any control over the cable programming, and (3) whether or not the programmers whose intellectual work product was being retransmitted or amplified should have any control over that retransmission or amplification and (4) whether either copyright owners or broadcasters should be recompensed for that use by additional audience not included in the original negotiations for rights.

Most of these arguments reached the courts for resolution during the first quarter century of the life of the cable industry. The question was similar to the hotel owner[5] or restaurateur who played the radio programs for their customers except that a cable system could reach a much larger audience. Technically, at the headend the electronic signals were reconstituted and resent to the cable subscribers in a manner which required more technical knowledge and economic capability than the mere amplification of the radio programs.

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[5] As with the radio programs and the video programming, the courts waxed and waned over the question of copyright coverage. At the lower court level no infringement was

found. At the appellate level, the cable system was found to infringe the copyrights by "performing" the works. But the Supreme Court agreed with the lower Court. There was no question of the systems actually "performing" the works, the Supreme Court found that the cable system merely enhanced the broadcast signal providing "a well-located antenna with an efficient connection to the viewer's television set."

The Court came down on the side of the television viewer rather than the broadcaster offering a dividing line between them of active performer and passive viewer with the cable system merely aiding the latter. However, the FCC went on to offer rather stringent restrictions upon programming carriage in its 1972 rules, which were, in effect, a compromise agreement between the broadcasting and cable industry intended to avoid federal legislation regulating copyright of cable programming.

Even with the added factor of microwave delivery of the television signal to a distant market, the Court, in CBS v. TelePrompTer, decided that the distant viewers were merely aided in their viewing by the cable retransmission. This led to much anguish in the broadcasting industry, which vacillated between support of a mandatory requirement that cable systems carry all local television signals and opposing the duplication by distant import of any television programs which might compete with their local signals.

After many troubled years of restricting the use by cable of imported distant television signals through FCC rules and regulations, the Copyright Act of 1976 reached the conclusion that cable television should be paying a royalty to the original programmers and set up the compulsory license in [Section 111 (d)]. A Copyright Tribunal [Title 17 Section 801] was established to serve as arbiter concerning any disagreements about distribution of the proceeds and adjustment of the rates according to the marketplace at five year intervals [Section 804 (a) (2) (A)].

Eventually the Courts or the FCC threw out all of the restrictions upon programming carriage by cable systems except for the rule mandating carriage of local television signals. However, the problems of use of intellectual product by cable systems is by no means resolved, especially as the great concern is that Congress has not given sufficient resources to the Copyright Tribunal to do the job it was given. [See, eg., Christian Broadcasting Network, Inc. v. Copyright Royalty Tribunal, 720 F 2d 2195 CCH Copyright Reps. P25, 588]

K. Common Carriers

1. Telephony

Leon v. Pacific Telephone &
91 F. 2d 484 (9th Cir. 1937)

A common carrier is required to carry any and all the messages offered to it. Ordinarily the carrier has no control over the content of the electronic bit stream except in very extraordinary cases. Thus most of the cases in the past involving intellectual property have been based upon rights in telephone directories or patents in the telecommunications equipment itself. This is likely to change as common carriers are permitted to provide videotex services beyond that of the traditional directory. For the "yellow pages" once keyed into the computer with interactive access to and from the customer become a dynamic medium through which purchases can be made.

2. Videotex

It is not surprising, therefore, that many of the newspaper chains in the United States as well as telephone companies are taking a great interest in videotex and engaging in joint ventures to develop both broadcast and telephone delivered textual services. Many are also providing pioneering data base services delivered via telephone lines to personal computers on customer premises. Dow Jones and the New York Times were among the first newspapers to become involved in developing "information banks" but the Times Mirror, Field Enterprises, and Knight Ridder have not been far behind.

The publisher of Harte Hanks was instrumental in leading a fight to obtain an injunction against AT&T from developing a very aggressive entry into electronic publishing. There was so much apprehension about unleashing the Bell Giant to compete in this arena that Judge Greene ordered the parent company out of this activity for the first seven years after the consent decree become effective (from 1/01/82). However, he did not restrict the operating companies from offering such services. Many are moving quickly into computerized textual services and also seeking waivers of other restrictions placed upon them in the consent decree, eg. Pacific Telesis has plans for an integrated network in the Palo Alto area of Silicon Valley which would provide a multi media service to a population already well supplied with a variety of innovative electronic devices for attachment to the telephone line.

Newspapers on the other hand, as the mail service has become less reliable but more expensive, have moved into delivery of information products other than those they produce themselves, thus competing with alternative delivery systems. Thus we see the line between information provider and information carrier grow dimmer and dimmer. This may confuse some of the established principles whereby the carrier has not been held liable for copyright infringement, so long as the carriage was purely passive and the carrier had no control over the content.

Moreover, it may become necessary for Congress to decide whether it is a healthy or deleterious trend to muddle the difference between carriage and content. It may be far healthier to clarify that difference not only for the purpose of protecting the free exchange of information products but in order to clearly establish the locus of legal responsibility.

3. Microwave carriers

Intermountain Broadcasting & Television Corp.
v. Idaho Microwave, et al.,
196 F. Supp. 315 (S.D. 1961)

Microwave v. Doubleday Sports,
691 F. 2d 125 (2d Cir. 1982) cert. denied
103 S. St. 1232 (1983).

In the first cases involving retransmission of a broadcast station via microwave to a community antenna television system, the court started the long road toward establishing a separate right in a passive from an active role in the transport of signals containing intellectual property. In the Intermountain Broadcasting &. Television Corp. v. Idaho Microwave a distinction was made on the basis that the microwave company did no more than the consumers could have done along or in concert with their neighbors to construct an antenna which would could capture the broadcast signal.

This distinction was carried forward and made more explicit in Eastern Microwave, Inc. v. Doubleday Sports, Inc. Doubleday challenged the carriage by the microwave carrier as an infringement of its copyright in the games of the New York Mets baseball team as they were broadcast by WOR-TV in New York. The television station had not objected to the carriage of its entire schedule via microwave to viewers beyond the reach of its transmitter.

The decision of the court was based upon the fact that the value added by the carrier was nil consisting "solely of providing wires, cables, or other communications channels for the use of others." However, the court recognized a distinction from established common carriers which carried messages desired to be sent rather than the microwave carriers which carried programs desired to be received.

However, it noted that the Congress had made its intent quite clear to exempt carriers from copyright liability when merely retransmitting television signals via terrestrial or satellite facilities [H.R. Rep. No. 599, 97th Cong., 2d Sess. 4 (1982)]. To avoid such liability the court determined that a carrier "must avoid content control by retransmitting exactly what and all of what it receives."

4. Satellites

a. Teletext Deletions

WGN Continental Broadcasting v. United
Video, 685 F. 2d 218 (7th Cir. 1982).
rehearing denied 693 F. 2d 628

Thus the seeds were planted which led to the Seventh Circuit finding United Video, Inc. guilty of copyright infringement when it deleted the teletext service provided by WGN in the vertical blanking interval of its broadcast signal.

A major question has arisen over who owns the text transmitted over by a broadcasting station and retransmitted via microwave or satellite which is not intended to be viewed as an integral part of the original program. In this case the satellite common carrier, United Video, deleted the teletext service, which was transmitted as a separate service on the vertical blanking interval and required a special decoder for the viewer to access the text. The courts found that United Video was not a passive carrier and had infringed the copyright of WGN, which is one of the three superstations delivered nationwide to cable systems.

b. Satellite earth stations

The Satellite Viewing Rights Legislation

Taking the argument that the carrier does only what the consumers might do on their own one step further,it is just a mite larger step to hold that consumers who erect antenna to capture televisions signals from the satellite transmissions on their own premises are not pirating the copyrighted materials and converting to them to their own use. The installation of an earth station extends the technical capability to receive what was intended to be received in any event.

Copyright owners may not be happy with the results of this logic or its impact upon the marketplace, but Congress has agreed with the almost million owners of satellite dishes (about 500,000 individually owned and about 400,000 by business establishments such as motels) that they are not engaged in any illegal act by installing such equipment and viewing satellite programming intended for cable distribution for their own enjoyment.

The new Cable Telecommunications Act, passed by Congress on October 11, 1984 and signed by the President offers protection for private viewing of cable programming. However, the home viewing exception [Section 705 (b)] to explicit anti-piracy clauses contained in the same act, is quite limited. It does not include viewing transmissions sent to the networks for editing nor does it include the use of data transmissions. Furthermore, the exemption is allowed only so long as a service remains unencrypted and the information provider has no established method of marketing its signal to viewers under a scheme which has been fairly negotiated and not preemptorily imposed. As Senator Barry Goldwater explained ""Section 705 is intended to confirm the rights of individuals under existing laws to view unscrabled services in the privacy of their dwellings".

Aside from the specific exception for home viewing, the anti-piracy provisions of the Act confirm the numerous cases under Section 605 of the Communications Act of 1934 confirming that broadcast signals not intended for distribution to the general public cannot be intercepted without legal liability.

L. Reprography

Williams & Wilkins Co. v. U.S.,
203 Ct. Cl. 74, 487 F. 2d 1345 (1973) aff'd.
420 U. S. 376 (1975).

The advent of the XEROX machine with its convenience and ease of reproduction produced a substantial jolt to the publishing industry; although it had accepted earlier the "first sale" doctrine which permitted libraries to purchase only one copy of a publication and lend this out to many readers. However, the uncontrolled copying of materials threatened a far bigger bite from their profits. Indeed, the guaranteed purchase by libraries was a floor to sales which recouped the costs of publication for many issues. Consequently, the imbalance between compensation for purchase and use was not an issue. Moreover, with paperback publications becoming so inexpensive sales to the masses seemed assured for popular literary works.

The test case came with the complaint of a scientific and technical publisher against the government for copying and distributing journal articles to doctors and researchers. Both the National Institute of Health and the National Library of Medicine developed the practice of responding to requests for photocopies. Upon the facts presented to the courts for determination, 87,000 such requests were filled by NIH and 120,000 by the NLM in a typical year.

Throughout the litigation the decisions were close. In a 4-3 decision, the Court of Claims decided that the practice was "fair use" but tempered the impact with a dissent which observed "...the decision will be read, that a copyright holder has no rights a library is bound to respect. We are making the Dred Scott decision of copyright law." An evenly divided Supreme Court affirmed the judgment of the Court of Claims.

However, the decision brought anguish to academic publishers especially publishers, such as the plaintiffs, who specialized in journals which served primarily the academic community. The 1976 act wrote the decision into the Act [Section 108]. Over the protests of the Copyright Office that too strict a definition of "fair use" should not be written into the Act, it grants permission for libraries to reproduce the entire original for archival, preservation, and research purposes, so long as "the reproduction or distribution is made without any purpose of direct or indirect commercial advantage" [Section 108 (a) (1)].

The market place response to this legislation and widespread practice of copying articles from the single archived journal in a library, has been a Clearing House sponsored by scientific journals to claim a voluntary royalty to be paid by the library into the clearing house account for each reproduction of a journal article.

There is, nonetheless, considerable reproduction of materials for classroom use, which might otherwise be purchased. Indeed, the prices for reproduction are lowest in the immediate environs of such learned institutions as Harvard and Yale. But these environments also spawn a growing number of consulting groups and entrepreneurial firms which rely upon such low costs and availability of the original intellectual products which are copied as a base of operations for activities which are not eleemosynary or educational but primarily profit seeking.

Consequently, in the case of reprography the tug between the two conflicting purposes underlying the intellectual property laws is seen in stark relief -- the desire to impart knowledge equitably and efficiently throughout the nation while fairly recompensing those upon whose industry the increased body of knowledge and intellectual productivity depends.

M. Computer Software

The history of attempts to obtain protection for the intellectual property imbedded in computers has been long and complicated. While there was no question of being able to patent the designs and processes for actual manufacture of the computers, there has been an anguished reappraisal of patent law, copyright law, and trade secrets law in an effort to accommodate the needs of the computer industry to protect the instructions through which the computers operate -- the software and new languages of the information age.

There has been no question of protecting the programming languages, such as Fortran, Pascal, Basic, etc., even as it would be unthinkable for anyone to hold a monopoly over the use of English, Chinese, French, Swahili, or Japanese. However, there has been a very large amount of analysis and litigation over whether the instructions imbedded within the hardware are: (1) patentable under the patent laws or (2) protectable separably under the rubric of copyright legislation, or (3) that their creators must simply fall back you upon trade secrets law. Unfortunately, none provide a perfect fit. Moreover, it is a negation of fact to require millions of users to keep the secrets of the software to themselves just as it was a legal fiction that the musical performances of performing artists were not performed when broadcast to millions in their remote audiences.

Computers programs come in several varieties, which also confounded the judges and legislators as well as the parties at interest. Computer programs are an ordered set of instructions, not written in ordinary language but written in mathematical symbols which tell the computers how many and in what order electrical impulses should be given to its components in order to execute a given function. Source code is written in the machine languages such as Basic and Fortran can be "read" and understood by a human being. Source code is then translated into Object code which tells the computer how to execute the instructions which can only be "read" by the machine and understood by a trained engineers. Thus the computer software problem is much like that of the piano player roll with the punched holes which could only be read by the piano.

Not only were there problems of whether or not the software designed only for the machine was really understandable by a human, but whether or not there was any artistic or literary merit in the expression so executed. Thus the difficulty of finding a slot between the patent laws which were designed to protect manufactured products and the copyright laws which were designed to protect human creativity with unique artistic or literary qualities.

Nonetheless, the Copyright Office, started receiving applications for the registration of computer software in 1964, and the mainframe computers had been patented as well.

1. Under Patent Law

Gottschalk v. Benson
409 U.S. 63 (1963)

Diamond v. Diehr
450 U. S. 1975 (1981).

In 1952, Congress overhauled the Patent Law [P.L.-593, 82d Cong. 2d Sess., 66 Stat. 792]. The fundamental philosophy was expressed as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, ..."

The problem with computer software was that it was not any of the above. Nonetheless, the Courts were sympathetic to granting a patent to cover software which was imbedded within the hardware, although later cases have suggested that imbedding too much software within the hardware or linking operating software exclusively to central processing units and thus requiring the purchaser to acquire both may run into anti-trust problems. [See, eg. Digidyne Corp. v. Fairchild Camera and Instrument Corp. 734 F. 2d 1336 (1984)

In Gottschalk v. Benson the Supreme Court was reluctant to extend patent coverage to a software program designed to convert binary-coded-decimal numerals into pure binary numerals. The Court felt that it would be patenting an idea not a process, and that "the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself". As the President's Commission on the Patent System in 1966 had considered and rejected the proposal that software be patentable, the Court felt that it had no mandate either to extend the letter of the law. "If these programs are to be patentable, considerable problems are raised which only committees of Congress can manage...."

2. Under Copyright Law

(a) object code
Apple v. Franklin
714 F. 2d 1340 (3d Cir. 1983), cert.
denied 104 Sup. Ct. 690 (1984).

(b) source code - Williams Electronics v.
Arctic International, 685 F. 2d 870

(3d Cir. 1983).

(c) machine generated graphics
Stern Electronics v. Kaufman,
669 F. 2d 852 (2d Cir. 1980).

However, Congress in passage of the general revision of the Copyright Law of 1976, delegated the problem to a Commission on New Technological Uses of Copyright (CONTU). The Commission after several years of hearings decided, over the strong objection of John Hersey who felt that the human quality of artistic and literary endeavor was being bastardized, to recommend that Congress authorize the Copyright Office to register computer software.

Nonetheless, the 1980 amendment did not settle the matter entirely. So long as computers were manufactured by only a few firms, and the software to run them was distributed under strict contracts governing their use, the problem was not a serious one. However, when Apple Computer began marketing a personal computer at a modest price, and the market for such computers took off skyward, the amount of computer software being marketed and pirated increased exponentially. Indeed, Apple encouraged user groups to write and exchange their Apple compatible software, a stratagem which has generally been cited as a large component in the success of the microcomputer industry.

Like the videocassette recorders and xerography the personal computer is fast becoming a ubiquitous instrument with about 5.5 million purchased in 1984 alone.

Although there was not much doubt about the copyrightability of the source code -- those instructions which could be read by a human being and which could be sent to the Copyright Office in an understandable "print out" which qualified as a "writing", the argument over the copyrightability of object code continued.

Although Apple had encouraged its users to share software, it was not as enthusiastic when the Franklin Computer Company attempted to share its operating program. Indeed, the Franklin company made no effort to hide the fact that it copied the Apple software including even references to APPLESOFT. It contained other features which made it easily identifiable to the creator who testified that the design of the software had cost Apple at least $740,000 to develop.

Franklin's argument was that it was a fledgling computer company which should be able to learn from the Giant and use its operating system -- perhaps on the assumption that the Apple program was, like Fortran, a language which should be shared in order to encourage the rapid growth of the industry.

Certainly many of the basic assumptions of the intellectual property laws rely upon an assumption that educational use is permissible, and, indeed, that "reverse engineering" is not prohibited. In other words, one may take apart the machine in order to learn how it works and write one's own program, but what one may not do is borrow or steal the exact expression of the original.

3. Under Trade Secrets Law

Kewanee Oil Co. v.
Bicron Corp. 416 U. S. 470 (1974).

Data General Corp. v. Digital Computer
Controls, Inc., 197 A. 2d 433 (Del. Ch. 1972).

When computer programs first became available, it was not entirely clear whether they would qualify for either patent or copyright protection. Thus the creators of such programs, of necessity, had to rely as much as possible upon the trade secrets laws of the various states. At the same time they tried to either patent or copyright their products.

Thus the question arose whether either patent application or copyright registration would foreclose reliance upon trade secrets. Kewanee Oil v. Bicron Corp. settled the question in the case of patents. The Court held that the patent law would preempt the application of the state trade secrets law only if the objectives of the two laws were inconsistent. The patent laws are based upon offering a right of exclusion for a limited period as an incentive for inventors to risk their intellectual and financial capital in the development of new products and services. In return for this right of exclusion of competition, the creator of the patented product or process is obligated to disclose the nature of the invention. This obligation the states could not abrogate, but the trade secrets laws are not preempted by patent legislation and remain in force where not in conflict as part and parcel of an elaborate and complex scheme for protecting intellectual property.

A similar question has arisen with respect to the 1976 Copyright Act which purported to extinguish common law copyrights prior to publication and establish copyright from creation based solely upon federal statutes [Section 301]. Nonetheless, the statute has not clearly superseded the trade secrets laws as a method of protecting intellectual property. There are sound reasons for continuing to permit software to seek such protection, since the best protection is often non disclosure or release under contractual restrictions as to its use.

The current practice is for software houses to release their product to customers under a license agreement in which the use by the customer is made contingent upon non disclosure to third parties. Many software programs also carry a copyright notice. However, the humor of the situation is quite apparent, when the user reads that it is allegedly prohibited to make a copy, but the instructions demand that a backup copy of the software program be made before it is used to insure the safekeeping of the program.

Under the new Copyright Act, computer software was explicitly included within the ambit of the Act. Still there are problems, because some software producers are reluctant to register their products with the Copyright Office, because they fear that the requirement of deposit of the first and last 25 pages of source code in a print out will permit their competitors to pirate their secret routines by reading the deposited copies. Although the Copyright Office has sought a solution to this problem, none has yet evolved. Yet it is clear that the requirements of disclosure which under pin the patent and copyright legislation should not be used to facilitate the pirating of proprietary processes which are difficult and expensive to generate but easy to copy.

To keep a trade secret, the secret must be kept; and "reverse engineering" or using the product to learn how to reproduce it without actually copying is a permitted practice under many state laws. Therefore, a better solution must be found for the protection of the rights to a software package without disclosing the particulars which will make it easy for a competitor to duplicate. This may involve registration of a program with disclosure of the identifying codes by which a program can be recognized without disclosing the entire contents of the program's subroutines.

Wide dissemination of a secret software package has not precluded an injunction against pirates. In the case of Data General v. Digital Computer Controls, Inc. the company was able to preserve its rights under the trades secrets law despite the distribution of over eighty copies of a maintenance manual which was used by as many as 6000 persons.

The basic problem with the protection of computer software is that it is time consuming, difficult, and expensive to develop while it is easy and cheap and quick to copy. Thus the dilemma persists.

N. Video Games

Atari, Inc. v. North Am. Phillips
Consumer Elecs. Corp., 672 F. 2d 607, (7th Cir.),
cert. denied, 103 S. Ct. 176 (1982).

Williams Electronics, Inc. v. Artic International
685 F. 2d 870 (1982)

Stern Electronics, Inc. v. Kaufman,
669 F. 2d 852 (2d Cir. 1982)

Video games entered the marketplace in the early seventies and became so popular that by 1981 "Pac Man" alone had generated $150 million dollars in sales and over a billion dollars in revenues for arcade operators in a thirteen month period. Certainly the computer software which controlled the game was an intellectual product which was extremely productive for its creator and subject to adaptation and downright copying by imitators desirous of getting a share of the video game profits.

Although the defendants have claimed that the images in an audio visual game are transient and cannot be "fixed", because the game generates new images each time a player operates the game, the court rejected this rationale for avoiding liability for infringement. The audiovisual work was found to be permanently embodied in a material object, the memory devices, from which the instructions to play the game were imparted to the player.

An additional problem of the copyright notice being imbedded with the memory device and not displayed on the computer screen was not improper, since the notice would have been read by anyone attempting to copy the instructions imbedded in the storage device.

D. Microelectronic masks

The Semiconductor Protection Act of 1984
P.L. 98-620 (1984) S. 1201 (S. Rep. 98-425),
H.R. 5525, (H. Rep. 98-781)

The recent passage of legislation designed to protect designs for the microelectronic masks used to produce semiconductor chips for use in computers is a marked departure from reliance upon generic legislation to protect intellectual creativity. It represents a realization that neither patent law nor copyright law adequately serves the information age. To begin with, the protection of the patterns on the "chips" is probably apt, since the silicon wafer can be considered the building block of the the information age. Without the ability to provide adequate protection to such a basic component, the U. S. would be helpless to reap the full economic benefits of its superiority in this area of economic competition.

Patent laws are inadequate, for it takes far too long to establish rights in the patent, and the diagram of the circuitry may not be patentable under present law. The copyright laws provide much too long protection as well as offering an umbrella philosophy which provides protection for artistic merit rather than utilitarian design (which Congress chose not to protect). There is also an objection to providing copyright protection because the patterns are intended to be "read" by a machine rather than a human.

Thus the new silicon chip legislation recognizes a new form of industrial intellectual property. By so doing, it represents a healthy departure from the notion that products of an artistic or intellectual nature are not utilitarian in the sense of being a valuable economic commodity. The road may be long and difficult before legislation is perfected which will establish a philosophical framework which will better serve an information society, but this is a sound step forward along this path.

The legislation attempts to provide for restrictions upon the importation of infringing chips from foreign sources and provides for reciprocal treatment to nations which recognize the proprietary interests of U.S. products, although this will probably not inhibit the piracy and sale of products using the mask designs for distribution and sale in countries other than the United States. Therefore, the protection in international markets is not secured.

Although the Act will be administered by the Copyright Office, the legislation is _suis generis_ and provides for a term of protection of only ten years.

F. _Export Control Regulations_

One of the more troublesome areas of intellectual property law in recent years has been the growing concern over the unintended export of technical information and expertise which the government considers to be critical to the defense of the nation or to its economic security. In this case the government, acting for the people, asserts a property right in privately owned information, at least to the extent of limiting the right of such information proprietors to export to certain countries.

The Export Control Act of 1962 contained the power to require a license for the export of certain "technical data". The application of the law prior to 1976 caused little difficulty because a broad, general license (GDTA) was provided for academic science and control of industrial information was usually associated with control of related commodities for export.

The law has experienced a troublesome history as the government sought to tighten the controls over "arrays of know-how". Scientists have traditionally operated in an international fish bowl which they consider prerequisite to the pursuit of knowledge. Thus the free exchange of unclassified technical information has been a matter of faith and actual practice ever since the reformation and the development of modern science as we know it.

Of course, technical information of a classified nature, for example relating to weapons systems, has been kept secret, at least to the best of the ability of the keepers of such secrets. However, the recent efforts to control technical expertise, which may be damaging to the strategic defense of the nation, go far beyond technical data about weapons. Under Section 379.1 (a) technical data is defined as "information of any kind that can be used, or adapted for use, in the design, production, manufacture, utilization, or reconstruction of articles or materials. The data may take a tangible form such as a model, prototype, blueprint, or an operating manual; of they may take an intangible form such as technical service."

Export of such data can take the form of release in a foreign country, inspection by foreign nationals in the U.S., oral exchanges of information in the U.S. or abroad, and the "application to situations abroad of personal knowledge or technical experience acquired in the United States" [Section 379.1 (b) (2) (iii)]. Thus such regulations could apply, if interpreted literally, to release of such information in classrooms to foreign nationals -- a considerable problem since approximately 50% of the graduate level engineering students in the U.S. are foreign nationals. It could apply to conferences of professional scientists and engineers meeting in the U.S. or abroad, and efforts have been made to exclude representatives of hostile countries from such meetings. It could even apply to the activities of the many U. S. consultants who travel abroad marketing their advice and technical expertise. Thus could be so, even if none of the technical data they posses in their heads is restricted under Department of Commerce regulations.

An interagency working group, drafting language for new regulations under the existing (but expired) Act, has proposed exceptions which would grant a general license to all communications which have already been made public concerning fundamental research, educational information, and patent information. Yet the complexity of determining what is or is not publicly available and what is or not critical to the national defense could result in endless bureaucratic complexity and litigation. Moreover, it is questionable, given the underlying philosophy of the scientific and technical community internationally, whether or not such complicated requirements would be efficacious or even desirable, since the efforts to limit the outflow might more effectively control the inflow of information. Thus the capability of U.S. nationals to improve their technical expertise might be diminished under too tight a system of control.

The question of export control raises interesting conflicts with a basic philosophy of openness, or competitiveness of the information marketplace without government imposed restrictions. In summary, export control of intellectual property is a major area for future analysis and continued concern.

Q. Computer Bulletin Boards

At the opposite end of the spectrum from export control is the computer hacker who pioneered use of the personal computer and became very facile in the use of the more sophisticated mainframes as well either in the work place or in educational institutions. Among these computer zealots there is a strong ethic of sharing the work product and learning from each other. There is also a strong compulsion to look upon information as something that innately must be shared. Consequently, there has developed a sub rosa economy of highly skilled professionals who know how to use the computer very well and may think nothing of entering and peeking at the innards of another's machine. Indeed, there has developed a system of computer "bulletin boards", whereby a "SYSOP" or systems operator exchanges the telephone number for accessing his computer, with the understanding that others will use it to place their messages into the system for subsequent access by others.

It is estimated that some several thousand of these computer bulletin boards are already active. Indeed, the operating manual for the Hayes Modem "SmartCom" program lists about 370 with such names as Online, A-C-C-E-S-S, Connection-80, Networks, Forum-80, Conference Tree, Remote Northstar, and Trade. However, this is merely the tip of the iceberg, (or underground volcano may be more apt).

The operations of such systems has recently come to national attention when the operator of one of them in the Los Angeles metropolitan area, Thomas G. Tcimpidis, was indicted for allegedly permitting AT&T telephone charge cards to be posted in his system as well as copyrighted software which could be downloaded by those who had accessed his system. Tcimpidis denied any knowledge of the allegedly incriminating information, nor did he admit any responsibility to monitor the contents of his bulletin board.

When the authorities impounded the offending computer, the community of "SYSOP" users rebelled, and the incident touched off a major discussion of the issues on such systems around the country. Indeed, it is estimated that it took only a few days for the news to be spread throughout the invisible network of computer network users.

The debate revolved around first amendment rights of computer bulletin board operators and ~~a~~ general a concern that basic values of exchange of information in a free society were being endangered. However, there was not very much sympathy expressed for the proprietary interest of the telephone company in its charge card numbers nor a right to protect its own economic self interest in preventing the unauthorized use of such charge accounts.

Computer communications have spawned an entire new medium of expression which can exhibit both the benefits and the hazards of earlier technologies. What is not yet clear is what well established principles should be applied to this new and dynamic electronic environment which has so much promise for facilitating exchange of information in a democratic society.

III. ALTERNATIVES TO LEGISLATION AND JUDICIAL INTERPRETATION

A. Contracts -- performance rights & residuals

Because of the frustration of artistic performers with the lack of coverage of their intellectual products by common law copyright or legislation, there arose the practice of drafting contracts for personal services very strictly to provide for adequate compensation both for the original performance and for any further use thereof. Many such contracts normally run to many pages -- the average or ten or more.

Stars, of course, have individual contracts which provide for much higher levels of remuneration for their creative efforts. However, many of the performers found mutual support in either negotiating collectively or at a minimum establishing Minimum Basic Agreements (MBA's).

Professional Societies have served the needs of their members in establishing fair minimum compensation. For the writers, there is Writer's Guild of America East and Writer's Guild of America West, which divides between the two major concentrations of writing talent in the metropolitan areas of New York and Los Angeles. In addition, there is the Author's League of America, Inc. started in 1912. The Director's Guild of America was formed in 1960 to serve the different needs of directors from writers. Performers are served by the parent organization Associated Actors and Artists of America, an A. F. of L. affiliate whose components are: Actors Equity Association, Chorus Equity Association, Screen Actors Guild and Screen Extras Guild, American Guild of Musical Artists, American Guild of Variety Artists, and the best known of them all American Federation of Television and Radio Artists (AFTRA).

There are many more specialized guilds. They range in size from the American Federation of Musicians which represents 300,000 performing musicians to some as small as the Composer's and Lyricists Guild of America with only 400 members, and the Dramatist Guild which has agreements to use its MBA with most major producers. The American Guild of Author's and Composers has agreements with over 1000 publishers to use its standard MBA.

The Societies have a tremendous amount of leverage with the producers and distributors of their products, as they are able to obtain the cooperation of their members boycotting uncooperative recalcitrant users of their talents. Consequently, they are able to obtain minimum levels of compensation for a group of talented people who have traditionally been underpaid.

Today, the amount of money paid for residuals is enormous, as television advertisements are played and replayed, and popular network television series run into syndication in both the domestic and international markets. Indeed, the performer who made the all time favorite ad "I can't believe I ate the whole thing." made a fortune from the re-use of his performance.

B. Collective Bargaining - ASCAP, BMI, SEASAC, Inc.

Collective Bargaining developed early in the history of the music industry, because it was difficult for both the composers and for the radio stations who used their intellectual product to deal directly. Consequently, three very powerful entities responded to the needs of the creative talent: the American Society of Composers, Authors and Publishers (ASCAP), Broadcast Music, Inc. (BMI), and the Society of European Stage Authors and Composers (SESAC).

Trust funds have been set up according to principles established by the collective bargaining units themselves in concert with the users. Regulation of the distribution of such funds resides primarily among the beneficiaries of the trust as represented by their bargaining agents. The Anti-trust laws have been used to influence a modification of undesirable behavior of an unfair or monopolistic nature. However, it has been suggested that the control of the music industry, in particular, was very centralized at the time these performing rights organizations developed, and that is not the case today. Consequently, therefore, it may be useful to take a careful look at how these societies operate in the present environment.

Both ASCAP and BMI are operating under consent decrees, and no effort has been made to regularize their activities through a compulsory license written into the Copyright Act. However, it is worthy of note that they represent the marketplace response to an ineffective legal framework to protect their interests, whereas industries, such as cable were unable to reach a satisfactory mode of operation. As a consequence, cable came under the umbrella of a compulsory license in the revised legislation [Section 111 (c)]. Although performance rights were discussed prior to the copyright revision of 1976, the supporters of such protection were only able to obtain a clause, like the one on computer software, seeking the advice of the Copyright Office [Section 114 (d)].

There has been some concern about the status of the societies in the bargaining process, as they are not employers, and the negotiation is not made strictly between employer and employee. Neither is there any statutory right or common law right upon which to base their claims. However, the theatrical business employs talent on a free lance basis. As a consequence the system of payment for re-use of the programs produced is an effective accommodation to the needs of the marketplace.

C. Copyright Clearance Center

Scientific and technical journal publishers and the professional societies they serve became quite concerned about the implications of the Williams & Wilkens decision. They banded together to devise a voluntary solution to the perceived problem of the publishers' loss revenue upon which the distribution of information critical to ongoing research depends. The answer was to organize a Copyright Clearance Center to collect payments from the libraries which were copying articles from the proprietary journals.

The payments are made in two alternative ways: (1) A library may require the making of an extra copy of the title page upon which a machine readable identification is imprinted. Such extra copies are then sent by the library to a central agency in Iowa which makes the calculations of royalty payments owed to which publishers. This was designed to put no additional administrative burden upon the librarians. (2) Libraries may negotiate a blanket license based upon an estimate of actual use and pay that amount directly into the Copyright Clearance Center for distribution to the publishers. Several large corporate users of research journals permitted a three month monitoring of their use by both supervised and unsupervised copying machines. They were reportedly "astonished" at the amount of copying by the latter machines.

The system has two disadvantages: (1) It makes no provision for the compensation of the contributors to the journals, although historically this has not been a problem since the contributors often paid page charges to get their material into the mainstream of research literature. The NSF, in fact, provides for such funds, in its research grants. However, this may change as the basic research leads to proprietary interests in such rapidly developing fields as bio-genetics and human engineering. The contributors may come to expect compensation for disclosing their intellectual work products. (2) The compensation paid depends entirely upon the voluntary cooperation of the libraries and ultimately upon the end user to provide the information necessary for computation of the payments due.

Nonetheless, the Copyright Clearance Center represents the kind of marketplace resolution of concerns preferred by the U.S. legal system and to which the Congress has often left the parties when an appropriate legislative solution was not apparent. Such is the case with homeowners of satellite "dishes" who are watching programming distributed by satellite to cable television systems.

F. Technological "fixes" - cryptography and monitoring of "use".

Although the public policy experts usually emphasize the problems which are provoked by the advent of new technologies, it should not be forgotten that new technologies often bring with them the opportunity to devise new solutions for old problems.

There is considerable concern of policy makers that computers, copiers, and satellites are creating havoc with the established rules for the protection of proprietary interests in intangible as well as tangible intellectual products. On the other hand, it is quite apparent that computers, copiers, and satellites have the capacity to expand enormously the access of people all over the world to human knowledge. They also may also make it possible for everywhere to contribute to that body of global knowledge upon which human progress depends.

With a word processor anyone can compose their own "newspaper"; with a copier anyone can publish that "newspaper"; with a modem hooked to the telephone anyone can discharge that "newspaper" into the electronic free marketplace of ideas. It is that concept which the "SYSOP's" are trying to protect, despite the somewhat questionable use to which some of their colleagues have put their bulletin boards.

All of this information processing, production, and distribution assumes the availability of a transportation system which will facilitate the uninhibited flow of information from information providers to information users. That is simply the sine qua non of an information society. Therefore, it is a primary concern of public policy in such a society to encourage, develop, and protect the transportation system for information products.

Moreover, that very capability to monitor "use" which many scholars abhor as an unreasonable invasion of privacy, has the positive benefit that it becomes easy to log in the use of such intellectual products as books and videotapes in order to compensate fairly the producers of those products. It may cause some inconvenience in transferring from one historical system to another. Numerous institutions such as public libraries and videocassette rental houses have made both public and private investment of capital based upon the concept of the "first sale" doctrine which permits a lower capital investment for the lenders of books and videotapes.

However, the users of patented designs for manufactured products were never expected to lend their work product without compensation just as the Hollywood producers were never expected to lend their film without payment of an admission fee for viewing the product. Consequently, it may be desirable to look at the inequities between intellectual products and the manner in which we recompense the input, especially as the difference between types of products diminishes, and an original intellectual product is disseminated in many forms to end users.

G. Staying ahead of the competition.

Many leading scientists and engineers, such as Roland Schmitt, Vice President for Research of General Electric, have indicated a concern that too much emphasis has been placed upon curtailing the free flow of information and not enough upon staying ahead of the competition. Certainly, much of the health of the U.S. in technological advances has been based upon easy access to both the education and the source materials to use that education as a foundation for intellectual progress. To rely too heavily upon secrecy for protection of U.S. information capital, may inhibit the full development of the human resources upon which the generation of new information capital may depend.

There are any number of computer software houses, such as Freeware, which operate on the principle that they can stay ahead of the competition and need not depend upon trade secrets or copyright protection to reward their efforts. What Freeware does is distribute its "floppy disks" with an invitation to copy them freely, use them at will, and to send a contribution if you like what you have used. As a reward for such contributions, Freeware then sends its updated and revised version of the software that you have chosen to use.

Asked whether or not users were so generous with their contributions, Patricia Smith, Freeware Product Manager, responded that "50%-75% of the users with whom they were in direct contact contribute to the support of PC-TALK, and an estimated 10% of the total copies in use have been paid for. In contrast to the cost of insuring payment for copies (copy protection, etc.) together with the cost of releasing a software program (advertising, sales force, promotion, etc.) we feel user supported software offers a very rewarding alternative."

The experience of Freeware is not cited to suggest that mode of operation as a preferable alternative to legally enforceable protection for intellectual property. However, it does indicate that there are other ways of evaluating the price of entering the marketplace and alternative solutions to the normal expectations of that marketplace. Indeed, an IBM employee who wrote a personal financial planning package and distributed it without copyright or trade secrets protection reportedly left his employer because he was earning over $100,000 a year from voluntary contributions from satisfied users of his software .

IV. OBSERVATIONS

1) GLOBALIZATION -- The international nature of the dual problems of protecting and encouraging intellectual productivity is apparent. The publishing industry has been worldwide for many centuries, but it is not currently flourishing. Patent licensing to entities in foreign nations has been increasing, with increasing applications for patents from foreign nationals. The profusion of joint ventures of companies with varying nationalities increases the likelihood of inconsistency of application of intellectual property laws of the participating nationalities. The ease with which employees transfer loyalties from one or more of such ventures increases the likelihood that trade secrets will not be kept.

The combination of computer communications with high speed delivery by satellites and optical fibers, the speed and quantity of information which can be transmitted and disseminated over a wide area have been increased manifold. Intellectual products created in one part of the world quickly permeate the world markets. Consequently, it is quite apparent that no one country can effect an entirely satisfactory solution in isolation and concerted action among nations is crucial in maintaining the respect for intellectual productivity and its financial reward.

2) INEFFICACY OF SECRECY -- Protection of intellectual property cannot be maintained solely by attempts to maintain secrecy. Such secrecy would frustrate the very purposes for which intellectual property rights were created. Protection must depend upon legal sanctions. Such legal sanctions rely for their effectiveness upon the respect of the citizens of the countries in which they are enacted. Open defiance of the consuming public will frustrate and obviate the effectiveness of any statutes which are not founded upon reasonable and equitable principles. Widespread use of video cassette recorders, backyard satellite dishes and copying machines are good examples of such public defiance.

3) MARKETPLACE SOLUTIONS -- Statutory solutions must rest upon a sound understanding of the marketplace forces which are at play and must not disrupt the normal expectations of the players whose interests are directly affected.

4) INADEQUACY OF CRIMINAL SANCTIONS -- Criminal sanctions are not very satisfactory, as the fines are paid into a public treasury rather than to the creators or distributors of the pirated product. Pirates may consider fines a reasonable hazard or absorbable cost of doing business. A more effective device may be multiple damages to the infringed party Criminal sanctions may be an

appropriate remedy for copying the proprietary intellectual property of nation states. They are not a satisfactory prohibition to the effective use of the information which has been taken without authorization, although they may facilitate civil redress of grievances.

5) COPY OUTMODED -- The basic philosophy upon which copyright is based, that of infringing copy is troublesome in a computerized environment, as one must produce a copy in order to read a work. Moreover, when accessing data bases a user rarely makes a hard copy of the entire intellectual product and usually retrieves only a portion of the original work contained in the data base. Consequently, it is use of protected products which needs to be controlled and compensated.

6) FIRST SALE -- The doctrine of first sale is troublesome. It protects the motion picture industry from dealing with original authors in works which have been transferred, for example, to publishers for printing when developing a film version. It also protects libraries from collecting royalties in the reading of books. However, the motion picture industry gets hoisted on its own pitard when it finds its product siphoned off to video cassette houses which lease rather than sell its product, thus depriving the industry (and all of its participants) from receiving compensation for such use.

7) PERSONAL USE -- The doctrine of "fair use" has evolved from one of promoting research, commentary, and the public discussion of issues which contribute to an open dialog in a free to society to one of personal use. Indeed, the doctrine of "fair use" might be described as an authorized borrowing of the intellectual work product of the information wealthy in order to transfer it to the more productive or less well intellectually endowed. The new interpretation of personal use is a far cry from quoting a learned scholar in a subsequent article or commenting about a dramatization in the newspaper. Learned scholars receive their rewards (both psychological and financial) from the multiple citation of their intellectual contributions. The participants in the dramatic production derive their reward from the attraction of theater goers to come and see the real thing.

The doctrine of "fair use" translated into "personal use" is not quite the same thing and derives not from a desire to expand the distribution for intellectual or marketing purposes. Indeed, just the contrary is true. The copying of written materials displaces a sale and the viewing of a videotape or satellite transmission without paying the producers robs them of the financial reward from that use of their intellectual product.

Thus the "personal use" doctrine seems the result of an inadequacy in coping with the technology rather than a well thought out rationale of the economic consequences of such doctrine. While it excludes the flagrant unauthorized use of intellectual output, eg. deriving commercial benefit from the distribution of works produced by others, it does not solve the problem of how the market accommodates itself to the widespread uncompensated distribution of works delivered in one medium which spill over to another, eg. where video programs, transmitted via satellite for redistribution through cable systems to paying customers, are picked up without compensation to or authorization by the copyright owners.

8) ARCHIVAL DATA BASES -- Scientific journals are particularly threatened by the new technology of reprography and access to remote data bases. As we move into greater and greater use of word processors for the production of intellectual product which has previously been distributed in such journals, the researcher who wishes to find previous material which is related to current research will go directly to the centralized computer for a search by random listing of words, titles, or authors. Although the clearing house approach is being attempted in order to cope with this problem, it is obvious that only one copy of a journal is really necessary for archiving and access. This is even more true for videotex services which market their information

products for a mass market.

9) DEPOSIT -- There is no sense in requiring data bases to be deposited in the copyright office, since they must be constantly changed to keep up to date. It would be onerous to attempt to do so and unlikely to be effective even if the problem of storage could be easily solved. For printed materials, which have a finite lifetime and finished form, such as novels and textbooks (as well as their visual counterparts) a central depository may make sense, but it does not make any sense for financial, scientific, or agricultural data which is constantly being changed and updated. Therefore, there must be developed some ways of electronic identification of work product which is distributed widely in a dynamic environment.

10) GOVERNMENT DOCUMENTS -- The prohibition against copyright protection of materials distributed by the U.S. government begins to have less and less efficacy as the distribution of intellectual product becomes more and more global. If the U.S. government is to give away its intellectual wealth, then surely it should do so in the context of either a _quid pro quo_ with other countries to which the product is exchanged or in the context of an internationally managed process, eg. the exchange of weather data which is essential to global monitoring.

The data collected by LANDSAT is a good example of what is possible, and controversial, as the U.S. has developed the technology to "copy" the view of the land masses of other countries (which they consider to "own" for themselves). Although the viewed countries cannot technologically "jam" the viewing or copying, they neither contribute to the cost of the collection of the data, nor can they prohibit the distribution of the data to third parties (at a mere cost of reproduction of the data not its intrinsic value or reimbursal of the cost of collection). This is a good example of the dilemma that the U.S. government confronts at the moment with respect to its responsibilities for leadership in the global community as well as financial accountability to its own citizens.

11) TIMING - The time of the protection afforded authors of life plus 49 years may make sense for published materials which have a long shelf life. However, it makes no sense whatsoever for computer software which has a half life at the moment which is quite short. Indeed, the entire personal computer industry probably owes its life and economic health to the decision of APPLE computers to encourage the free exchange of software written for use by PC users among themselves. The new integrated circuit legislation which provides a protected period of 10 years to the original designers and manufacturers is a positive development.

12) PROCESS -- The process by which an intellectual product becomes protected in the patent procedures is quite long and attenuated. As a consequence, developers of computer software have not found it a very useful route to go (aside from the difficulty of obtaining patent protected unless the software is imbedded within the hardware). Consequently, the process through which protection is obtained must be expedited and facilitated.

13) INTERDEPENDENCE -- Before addressing new legislation it is important to understand that all of the legislative attempts to protect intellectual productivity are interrelated and that they also interact with non-legislative as well as judicial efforts to stimulate, protect, and reward intellectual innovation. Thus is it extremely important not to deal independently with legislative initiatives without understanding how that particular piece of suis generis legislation affects the application of existing statutes and established judicial decisions, as well as non official modes of establishing protection such as clearing houses, union practices, etc.

14) PATERNITY AND INTEGRITY -- Although U.S. law has chosen not to protect rights of paternity (the right to recognition for work accomplished) and integrity (the right to control subsequent versions and modifications of an

original work) is recognized under the Berne convention and by many of the nations of the world which do recognize a need to protect such rights as intellectual property. As the U.S. becomes more and more enmeshed in an international marketplace for intellectual products and more dependent upon financial remuneration from such activities both as a source of income for its citizens and secondarily as a source of financial support for its governmental activities through taxation, it must necessarily take into consideration rights which have become established and recognized in other countries with which it is a trading partner. Moreover, current protection relies substantially upon contract provisions which are based upon the comparative strength of the parties involved in the negotiation. However, even in areas which provide virtually no protection of the design interest, such as the widespread copying of designer clothing in oriental markets, originators of design have a vested interest in the integrity or accuracy of the reproduction which bears their name aside from the loss of income associated with the unlicensed and unauthorized copies being marketed under their label by "garment poachers".

15) VIDEO IMAGES -- In prior times the technology of reproduction did not permit an actual copying of performances, so that what a person was able to produce in person was protected by personal possession. Furthermore, the technology had not been invented for widespread

distribution of such performances, as they were limited to the size of a theatre in which performers could display their talents. All this has changed, and it is as easy to "reverse engineer" a theatrical performance as to "reverse engineer" a patented manufactured products. Therefore, a problem exists not only with the protection of performance rights, eg, the reproduction of the exact performance, but in the unauthorized "mimicking" of the performance by look alikes especially in advertising.

It is also possible to cut and paste video images in the same way that cutting and pasting is done with published manuscripts through sophisticated electronic editing. Therefore, there must be some concern generated over how to provide some control of individuals over their own images without inhibiting artistic creativity. Imitators should not be able to diminish the commercial value of the original performance or deliberately cause detriment to the reputation of the original performer.

16) DISPLAY -- The status of a video display for current use on a screen is quite unclear -- eg. in videotex, etc. There is no hard copy. Yet one can be made by hitting the "printscreen" key on the computer terminal if the software permits the user to do so. For example, LEXIS/NEXIS cannot be printed from screen or into a disk by most computer software programs, although probably some computer hacker has

probably figured out a way to invade this system also by now. However, in many countries, such as Singapore and Australia this issue is an important one.

It may be that U.S. law under its 1976 act by citing "...any method now known, or later developed, and from which the work can be perceived, reproduced or otherwise communicated..." [Section 101] is adequate to protect the interests of producers of such information products. Still there are still areas of doubt. For example, where a Local Area Network operated by a business entity captures the videotex from a central data base and then redistributes it to its internal staff -- Is this for personal use? A similar question arises where a law firm, for example, orders one subscription of an expensive trade newsletter for its entire staff and reproduces copies for internal distribution. Is this personal use and therefore, "fair", or is it materially displacing sources of revenue for the information collector and distributor and possibly inhibiting the viability of a healthy marketplace?

17) CONFUSION OF CARRIAGE WITH CONTENT -- As the line between information providers and information carriers grows more and more diffused, the legal distinctions will become more confused. It will be up to Congress to decide whether it is healthier to encourage the confusion or to enact legislation which spells out with clarity the

difference between the active involvement in collection, storage, and processing of information and the transport of that information to end users.

18) THE MESHING OF ENTERTAINMENT AND EDUCATION -- It is becoming increasingly difficult to discern the difference between what is produced for entertainment purposes and what is produced for educational purposes. Students expect to be entertained and viewers of commercial programming are educated. As the economic underpinning of these two economic sectors have differed markedly, there will be an agonizing reappraisal as their interests merge.

19) MACRO ECONOMIC IMPACT -- With the rapid informatization of society, if intellectual property cannot be protected through legal means, if information really leaks and the hemorrhage is truly unstoppable, as Harlan Cleveland and other scholars have suggested, then alternative sources of financial reward must be found to stimulate intellectual productivity. Otherwise, intellectual creativity may be discouraged and the U. S. may become a more conservative and less productive society. How First Amendment, copyright, patent, trade marks, neighboring rights, and export control theories affect intellectual productivity needs to be better understood in order to accommodate U.S. laws to serve its national and global goals.

COPYRIGHT AND NEW TECHNOLOGY:
THE IMPACT ON THE LAW OF PRIVACY, ANTITRUST AND FREE SPEECH

L. Ray Patterson

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I. Introduction

The law of copyright is undergoing a transition of major, and as yet unacknowledged, proportions. In the age of information, copyright can no longer be viewed simply as a limited statutory monopoly granted to the author to encourage the production of creative works for the benefit of society, for it has become as much the concern of the compiler of facts as of the creator of a work of art. Because of new technology, which has created electronic communication, there is developing a new branch of copyright law that benefits the entrepreneur as purveyor of information rather than the author as creative artist.

The unique characteristic of electronic communication is the transmission of information in ephemeral form. The extension of copyright protection to the information so transmitted is contrary to traditional copyright. Prior to the 1976 Copyright Act, every copyright statute in this country with one minor exception,[1] required publication of the copyrighted work in fixed form as a condition of statutory copyright. The premise underlying copyright---that the copyright owner will provide uncontrolled user access to the copyrighted work in order to promote learning---is being ignored under the onslaught of new technology. The promise of uncontrolled access as the quid pro quo for the protection of the copyright owner's profit guaranteed by statute is slowly but surely being made meaningless.

New technology thus threatens to change the essence of copyright from the right to reproduce the copyrighted work in copies for sale to the right to control access to the copyrighted work for any reason. The copyright owner of television programs and databases, unlike the copyright owner of a book, who loses control of access to the book once it is published, controls the conditions of access to the copyrighted material after it has been made public. The core problem of copyright and new technology, then, is control of access, arguably a problem of constitutional dimensions. The copyright clause empowers Congress to provide for copyright only for authors, only for writings, only for limited times and only to promote the progress of science, that is learning. To use copyright law to give the copyright owner complete control of access to the copyrighted work that is for public dissemination is to give the copyright owner the power to inhibit learning.

Yet, the problem has so far gone unrecognized, partly because the constitutional requirement of a fixed work was fulfilled in the 1976 Copyright Act by the use of a fiction--live television broadcasts are fixed if they are recorded simultaneously with the broadcast; partly because some products of new technology, for example, computer programs and sound recordings, are distributed in copies; and partly because the present revolution in technology began at the turn of this century with sound recordings and motion pictures. The changes in the copyright law to accomodate these developments makes the revolutionary change in the 1976 Copyright Act in making copyright protection available for any information in any fixed form[2] seem to be less revolutionary than it is.

The first major development in this change was the motion picture, copies of which were not distributed to the public, but leased to motion picture theaters for the public to view. For the first time, copyright was used to give the copyright owner complete control of access to the copyrighted work, one result of which was, as discussed below, a violation of the antitrust laws.

Congress took a different approach to a contemporaneous development of technology, sound recordings. The 1909 Copyright Act denied copyright protection for sound recordings, but gave the copyright owner the right to make a first recording, the exercise of which triggered the compulsory recording license for others to record the same musical composition. The purpose here was to preclude control of access as against competitors, not users. And it is worthy of note that Congress was more reluctant to grant copyright protection to sound recordings, which like books required dissemination in copies, than to motion pictures, which did not.

In terms of modern technology, the motion picture and sound recordings were primitive developments. For one thing, their subject matters was limited for the most part to the realm of entertainment and the copyright issues involved were limited to competitors, not users. And it may be significant that radio developed, progressed and passed through its golden age without any special copyright protection, a fact which suggests that copyright protection for television programs per se may be unnecessary to benefit the public welfare. The point is relevant because television and computers reach into almost all aspect of everyday life, inducing reliance by the viewer and user to the extent that their use can affect the individual's destiny in a number of ways--decisions on how to vote, on education, on jobs, and, indeed, personal development.

This impact of the products of new technology on the lives of individuals and the use of copyright to protect those products means that copyright law is no longer an island unto itself. The telling point, perhaps, is that new technology has changed the market for many copyrighted copyrighted works. For works of new technology, copyright is often used to protect a service, for example, television broadcasts, rather than a product, for example, a book.[3] Copyright law, thus, becomes inextricably interrelated with the law of privacy, antitrust and free speech, for under the 1976 Copyright Act there is literally no information that is not subject to copyright protection.

Ostensibly, the 1976 Copyright Act denies protection for information,[4] but this prohibition is substantially negated when the form of the copyrighted work gives the copyright owner control of access to the material. The traditional solution to this problem, the idea/expression of the idea dichotomy, does not work very well in the context of new technology. For it is based on the primitive notion that the expression of ideas is limited to language, an idea adeqautely refuted by the advertising industry. Televison, for example, is directed more to emotion than reason and to provide the purveyor of messages over a public media in ephemeral form the power to deny the recipients subsequent access to the messages is to legalize the manipulative power of television.

The problem of copyright and new technology can be approached in one of three ways. Congress can create a sui generis copyright for works produced by new technology; Congress can modify existing rules of copyright to accomodate new works of technology, limiting the modification to the new type works; or Congress can simply extend existing copyright rules to cover new works of technology.

In the 1976 Copyright Act, Congress chose the third alternative as a basic approach in providing that "copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression now known or later developed, from which they can be perceived, reproduced or otherwise communicated, either directly or with the aid of a machine or device."[5] Even so, Congress used the second alternative in regard to copyright for sound recordings by limiting the rights of the copyright owner to the reproduction of the actual sounds recorded and not precluding the imitation of the sounds.[6] And, indeed, the compulsory recording license, first introduced into the 1909 Act, is also an example of the modifiction of copyright to accomodate new technology.[7]

The second approach is probably not only the most practical, but the most sound intellectually, as least for the problems dealt with in this paper--the interrelationship of copyright, the law of privacy, antitrust and free speech in light of new technology. It would require relatively few changes as indicated below, some of which would resolve problems characteristic of traditional copyright because of the weak conceptual foundations of copyright.

The basic issue in considering these changes is to what extent the rules to be used to implement the policies and principles of copyright to accomodate new technology will conflict with the policies and principles of the law of privacy, antitrust and free speech. To make this determination, it is necessary to identify the policies and principles involved and to determine their point of intersection.

The basic policy of copyright law can be said to be to encourage the production of works in order to promote learning. Its basic principle can be said to be to protect the profit of the copyright owner as a means of implementing the policy.[8] The basic policy reflected in the law of privacy can be said to to be protect the integrity of the individual. Its principle is that individuals have a right to be left alone. The basic policy of antitrust is to promote a free market, and its principle is to prevent monopolistic practices that hamper the operation of a free market. The basic policy of free speech is to prevent governmental censorship and its principle is twofold: to protect the speaker's right to speak and the listener's right to hear. That is, the right of access must be construed to be an essential component of the right of free speech.[9]

The relevance of these various policies to the law of copyright becomes most obvious when one attempts to apply the rules of copyright to new technology by reason of which the copyright owner controls, or attempts to control access to the copyrighted material, for example on the television broadcast or in the computer data bank. For control of access inhibits learning, creates the threat of monopoly and poses a threat to free speech. Moreover, to give the copyright owner control of access to compilations of private information about individuals poses a serious threat to the integrity of the individual.

On the other hand, the very technology that has made the information industry so profitable is the same technology that facilitates the reproduction of the work by both competitors and individual users without compensating the copyright owner. This, of course, is the visceral issue. Copyright owners probably do not care to inhibit learning and probably could not care less about free speech, although monopolistic control is dear to their hearts. They do want to make a profit and the side effects of this goal are of little interest to them. In short, copyright owners would prefer not only that copyright law be used to protect their profit, but to create a profit for them. The distinction is one made realistic by Xerox, which facilitates the copying of copyrighted material. Several publishers, having sold a copy of their book, purport to give the purchaser the right to copy a page of the book for 50 cents, a practice which seems to be wholly at odds with the fair use doctrine.[10]

If this practice is sustained by the courts, they will have enabled the copyright owner to use copyright law to create a profit rather than to protect the profit. This was the purpose of the copyright owners of motion pictures in bringing their action against Sony Corporation. Their goal was not to preclude home videotaping, but to require homeowners to pay a fee in the form of a compulsory license for the videotaping.[11] Given the natural tendency of copyright owners to expand the reach of the copyright monopoly to improve their profit, the problem is not one to be overlooked.[12] For the copyright issues raised by new technology are critical not only for the development of what is here called a new branch of copyright law, but also for traditional copyright. If the right to control access to works of new technology is accepted, inevitably there will be an attempt to apply the same principle to traditional copyright. Witness, for example, the call for legislative repeal of the judicially created "first sale" doctrine and the creation of the Copyright Clearance Center to collect charges for copying printed material. This is why it is so important that the problem of copyright and new technology be dealt with in fundamental terms that take into account not only the interest of the copyright owner, but the user as well.

The nature of the problem, how to protect a product the economic value of which depends upon joint use--that is use by the copyright owner and the individual user--and which is capable of easy and piratical reproduction, gives the copyright owner a sound reason for seeking ever greater copyright protection. But it must be kept in mind that to monopolize the marketplace of information--and the communication of ideas--involves considerations of far greater import than profit. Thus, as the Supreme Court has said time and again, copyright is granted primarily to benefit the public, not the copyright owner.[13]

The problem is one that must be resolved in a context both of technology that has created new forms of communication which have little in common with the progenitor of copyright, the printing press, and of laws which were not extant when the concept of copyright was created in Elizabethan England-- laws that protect individuals in the integrity of their person, and against being compelled to pay monopolistic prices, and in the right of free speech.

The major obstacle in this task is the weak conceptual basis of copyright. The principles of copyright were first formed by entrepreneurs in terms of private law they made to protect and control the market for their books.[14] This private law, with modifications, became statutory in the first English copyright act, the Statute of Anne.[15] Later, this positive law of copyright was modified by the House of Lords in terms of natural law in recognition of the rights of authors. This was in the famous case of Donaldson v. Beckett,[16] which held that the author has a common law copyright, that is a natural law right in his works until the time of publication, when the only rights he has are those granted by statute, that is, it became a positive law right. How a natural law right could be transmuted into a positive law right was never satisfactorily explained, but the problem was glossed over by the recognition of the first as a common law copyright, the second as the grant of a statutory monoly. The Supreme Court in Wheaton v. Peters,[17] its first copyright case, adopted the positive law view of copyright, rejecting the notion that statutory copyright was based on any natural rights of the author. Nevertheless, the common law copyright survived in this country until the 1976 Copyright Act. The continued existence of the common law copyright meant that the positive law concept of copyright was never completely accepted, partly because copyright was continually characterized as an author's right. There is much in a name.

This marriage of positive law and natural law in one legal concept has never been wholly successful. It is responsible for the weak conceptual basis of copyright and has resulted in contrary decisions by the Supreme Court. In some decisions, the Court applied rules of copyright law mechanistically to limit the copyright monopoly despite an unjust result for authors,[18] and in others the Court judicially extended the coverage of copyright beyond the words of the statute.[19] Consequently, it is not clear whether copyright should be viewed as a positive law or a natural law concept.

The fact is that it is treated as both. The copyright statute posits copyright as a positive law concept, but the courts tend to interpret copyright issues as if copyright were a natural law concept. Thus it is not always apparent how the policies of copyright intersect with the policies underlying the law of privacy, antitrust and free speeeh. Once the interrelationship is perceived, the problem becomes one of determining the critical point of intersection and the priority to be given in making the accomodation.

The method here is to attempt, first, to determine the point at which the law of copyright intersects with each of the bodies of law under consideration, and, second, to determine the significance of the point of intersection in terms of the policies represented by the law of copyright and the law with which it intersects. The conclusions, in summary form, are as follows:

1. The Law of Privacy

The law of copyright intersects with the law of privacy when the subject of the copyrighted material is information about an individual. The intersection has more significance for the law of privacy than copyright. This is primarily because the courts in privacy cases disregard the fact that the offending material is copyrighted. The use of copyright to protect material that invades another's privacy, however, is not only a repugnant use of copyright, it constitutes a substantial threat to civil liberties. Consequently, it is a matter which Congress should deal with directly for to leave it to the vagaries of judicial decision is to denigrate the importance of liberties guaranteed by the First, Fourth and Fifth Amendments to the Constitution. There is a relatively simple twofold remedy: (1) Preclude copyright protection for confidential material relating to private individuals, and (2) amend the fair use doctrine to give anyone who is the subject of copyrighted or copyrightable material a right to have a copy of a record of that material as it pertains to him or her.

2. The Law of Antitrust

The law of copyright intersects with the law of antitrust when the copyright owner attempts to use copyright to gain control of the market. Since the courts refuse to permit this misuse of copyright, the intersection is of more significance for the law of antitrust than for copyright. This point, however, means that an amendment to the copyright statute precluding the use of copyright in violation of antitrust laws would do no harm to copyright principles.

3. The Law of Free Speech

The intersection of the law of copyright and free speech occurs when two conditions exist: The copyrighted material is vested with a large public interest and the material is not published. The exemplar of copyrighted material that fulfills these two conditions is television newscasts and public affairs programs.

The problem is inherent in the nature of copyright created for new technology. This new type of copyright creates a potential conflict between two constitutional provisions, the copyright and free speech clauses. The suggestion here is that copyright be accomodated to the rights of free speech by the simple expedient of recognizing that the copyright clause, and therefore copyright, incorporates free speech values.

II. Copyright and the Law of Privacy

The law of privacy traces its origin to the famous article of Warren and Brandeis published in the Harvard Law Review in 1890,[20] and has developed to the extent that the right of privacy is in fact a tort of four diffent kinds: appropriation, unreasonable intrusion, public disclosure of private facts and false light in the public eye.[21]

All of these forms of the tort may, but need not, occur in the context of copyrighted materials, and the concern here is only to the extent that they do. Thus, a person's privacy may be violated by a motion picture, a magazine article, a play, a newspaper article or a television broadcast, all of which are made public. But a person's right of privacy may also be violated by confidential compilation of data, dossiers of information of which the individual may never be aware, but the use of which may have a significant impact on his or her life. The extensive reach of copyright under the 1976 Copyright Act makes such material copyrightable.[22]

There are two problems: First, at what point does the law of privacy intersect with the law of copyright? Second, is this point of intersection more significant in terms of copyright law or the law of privacy? The answer to the first problem is that the intersection occurs when information about an individual is the subject of or is included in a copyrighted work. This may occur in a biography, a news report or a compilation of data, for example, a credit report.

The answer to the second problem is less clear. Generally, the law of copyright is not brought into issue in privacy cases, although copyrighted material is involved. A person who claims to have been wronged by the use of information about himself has no interest in the copyright of the material, and thus no basis on which to allege copyright infringement. No defendant seems to have claimed that copyright protects one against the consequences of tortious conduct.

The fact that copyright law has not heretofore had any consequences for the law of privacy, however, does not mean that it will not have any for the future. It must be kept in mind that cases on the law of privacy have not yet dealt with the issue in terms of the copyrighted products of new technology. A recent decision of the Eleventh Circuit, Duncan v. Pacific & Southern Co., Inc.,[23] suggests the nature of the problem.

In the Duncan case, a television station brought an action of copyright infringement to enjoin a broadcast monitor from videotaping its newscasts off-the-air and selling videoclips of news stories taken from the newscasts to subjects of the news stories. The Eleventh Circuit denied the plaintiff's defense of fair use and ordered a permanent injunction to enjoin the broadcast monitor from continuing to infringe the television station's copyright.

The injunction was ordered despite the following facts: the television station erases the videotapes of the newscasts every seven days; the station does not customarily register its claim of copyright on the newscasts, a condition for an infringement action; the plaintiff was not in competition with the station and did it no financial harm; and the monitor sold videoclips only to the subjects of the news stories. Given these facts, one can reasonably infer that the motivation of the station was to retain control of access to its publicly aired newscast to prevent a potential plaintiff from obtaining a hard copy of any report that could be used as a basis for a tort action against the station. In this connection, it is noteworthy that the custom of the industry is that television stations erase videotapes of news broadcasts.

Until the 1976 Copyright Act, copyright would not have been a legal impediment to access, since copyright was not available for live television broadcasts. The critical point is that under the 1976 Copyright Act, the copyright owner is given jural as well as de facto control of access to the copyrighted material.

Even so, Duncan is a clear example of the misuse of copyright law, that is a use for purposes unrelated either to the purpose or the function of copyright. Yet, the case results in an enhancement of copyright which is clearly not countenanced by the copyright act, as one commentator made clear.

> "The Duncan Court, without citing . . . cases, approved an injunction against future works that had not as yet been created or registered. The Court based its ruling on two interesting grounds: under Section 502(a), the Court is empowered to grant injunctions to prevent or restrain infringement of 'a copyright' which need not be the registered copyright in issue, and under Section 408(a), registration is 'not a condition of copyright protection.' Practice Tip: This

> decision may well be followed and plaintiff's counsel should, therefore, attempt to broaden the scope of the injunction to include future related works even though they are not as yet in existence or registered." Boorstyn, The Copyright Law Journal, vol. 1, no. 8, p. 88 (1985).

The significance of Duncan, perhaps, is that it reflects the naivete with which most courts deal with copyright issues--the court gave a natural law interpretation to statutory copyright. Thus, the court simply viewed copyright as property and concluded that any interference with that property is not to be countenanced. The holding is is all the more surprising in light of the Supreme Court's decision in Sony Corporation of America v. Universal City Studios,Inc.,[24] in which the Supreme Court held that home videotaping off-the-air of copyrighted television programs is a fair use. The importance of Sony is that it is an implicit recognition that the copyright owner of publicly disseminated copyrighted works is not to retain complete control of access to those works, that is that copyright is a positive law concept. Thus, it can be analogized to cases which promulgated the "first sale doctrine", thereby preventing the copyright owner from continuing to exercise control over the resale of the copyrighted work.[25]

Sony can be viewed as establishing the "public dissemination doctrine" which may be even more significant than the first sale doctrine in that it relates to a medium which enables a copyright owner to retain complete access to the copyrighted material. But the problem here is more subtle than that involved in the first sale doctrine. This is because a very large portion of television fare consists of news and public affairs programs. Thus, if the principle of the right to control access to a copyrighted work that has been made public is accepted as sound precedent, a principle of property law will be given precedence over significant civil rights as manifested in both the First and Fourth Amendments of the Constitution. The result will be recognition of a power of censorship in reverse, a power that is vested in powerful communications conglomerates.

The importance that Congress attaches to this issue is demonstrated by the privacy provisions of the Cable Communications Policy Act of 1984, PL 98-549, 98 Stat. 2779. In section 631, "Protection of Subscriber Privacy," Congress required a cable operator to provide notice once a year to a subscriber "which clearly and conspicuously informs the subscriber of --

> "(A) the nature of personally identifiable information collected or to be collected with respect to the subscriber and the nature of the use of such information;
>
> "(B) the nature, frequency, and purpose of any disclosure which may be made of such information, including an identification of the types of persons to whom the disclosure may be made;
>
> "(C) the period during which such information will be maintained by the cable operator;
>
> "(D) the times and place at which the subscriber may have access to such information in accordance with subsection (d); and
>
> "(E) the limitations provided by this section with respect to the collection and disclosure of information by a cable operator and the right of the subscriber under subsections (f) and (h) to enforce such limitations."

House Report No. 98-934 explains the reason for and the importance of this provision:

> "Cable systems, particularly those with a 'two-way' capability, have an enormous capacity to collect and store personally identifiable information about each cable subscriber. Subscriber records from interactive systems can reveal details about bank transactions, shopping habits, political contributions, viewing habits and other significant personal decisions."
>
> "It is important that national cable legislation establish a policy to protect the privacy of cable subscribers. A national policy is needed because, while some franchise agreements restrict the cable operator's use of such information, privacy issues raise a number of Federal concerns, including protection of the subscribers' First, Fourth, and Fifth Amendment rights. At the same time, such a policy must also recognize and not unnecessarily or unreasonably impede those flows of information necessary to provide the service to the subscribers. The privacy provisions of H.R. 4103 are designed to meet these objectives." U.S. Code Cong. and Ad. News, pp. 4666-67 (No. 10A, December, 1984).

Strictly speaking, the privacy provision of the Cable Communications Policy Act can be said to conflict with provisions of the copyright statute. For the material gathered and fixed by the cable operator would be protected by copyright and the provisions of section 631 clearly conflict with the exclusive rights of the copyright owner as set out in section 106 of the Copyright Act.

The concern of Congress for the individual's right of privacy in the Cable Communications Policy Act is a manifestation of the fact that an individual's privacy is more than a matter of tort law--it is a matter of civil liberties. And the problem may be most acute in regard to credit reporting agencies which by reason of the nature of their business operate in a confidential manner and in most states with a qualified privilege. Shore v. Retailers Commercial Agency, Inc.[26] The existence of the privilege lends support to the argument that copyright on the material gives the agency the right to control access to it. The use of copyright for these purposes requires no formalities, and the claim that copyright does protect the material against access by the subject of the report may be effective as an in terrorem device, even if courts would not support it in the event of litigation.

Few would argue that copyright law should be used to protect confidential data about individuals from access by the subject of the material, and in fact the effect is a by-product, not a goal, of the 1976 Copyright Act, which eliminated publication as a condition for statutory copyright. As pointed out above, prior to the 1976 Act, every copyright statute in this country, with one minor exception, required publication of the work as a condition for statutory copyright.

If copyright were limited to protecting the creative works of authors, the changes made in the 1976 Act would be of little significance for the law of privacy. But the fact is that copyright is not so limited and when the principles of copyright are applied to works that utilize facts relating to individuals, copyright law becomes vested with a different kind of public interest. The rights of the subject of the copyrighted work must be protected as well as the rights of the author and entrepreneur.

The protection to which the subject of copyrighted material is entitled is against abuse and an argument can be made that this is the province of other law, not copyright. This argument, however, fails to take into account two points: The problem is not copyright law so much as it is a misuse of copyright made ostensibly lawful by the copyright statute which has made the coverage of copyright boundless. More important, there is here involved a fundamental policy relating to respect for, and the integrity of, the individual. The mere fact that copyright can be used in a manner to pose a threat to the citizen's civil liberties is a cause for major concern. The remedy, then, is the proper province of that statute.

The desirability of providing in the statute itself a protection against the misuse of copyright law in relation to persons who are the subject of copyrighted material is all the more appropriate since it can be done without doing violence to traditional copyright principles. There are two aspects to the problem, material that is kept confidential and material which is made public. As to the first, copyright protection for compilations of private data about individuals could be denied. As to the second, the vehicle is the fair use doctrine, which could make clear that a person who is the subject of copyrighted material has a right of access to that material, which right may be enforced against the copyright owner or his agent. An amendment to section 107 could be phrased to accomplish this purpose. It need only provide that one of the factors to be considered in determining whether a use is fair is to what extent the user is either the subject of, or directly affected by, the copyrighted material.

III. Copyright and Antitrust

Copyright has been saddled with the opprobrious epithet of monopoly since the latter part of the seventeenth century when the booksellers in England used the stationers' copyright as a device to create a monoply of the booktrade. Consequently, it is natural to think of copyright law as contravening the antimonopoly policy of antitrust law as manifested in the Sherman and Clayton Antitrust Acts. There is, however, a substantial difference between copyright as a monopoly and the anticompetitive practices to which the antitrust laws are directed. In it's simplest form, copyright law provides for the limited monopoly of a product, the antitrust laws are directed to preventing a monopoly of the market.

The monopoly of a product, of course, is the first step in securing a monopoly of the market, but they are not the same thing. While the copyright of a book gives the copyright owner a limited control of the market for that book, it does not give the copyright owner control of the market for all books. On the other hand, the ownership of the copyrights of all books would give the owner of the copyrights control of the market for the books. In short, while copyright is a device of monopoly, a single copyright is no more a monopoly than the ownership of any product for the market.

The booksellers' monopoly in England that led to the enactment of the Statute of Anne serves to demonstrate the point.

The stationers' copyright, the device of that monopoly, was unlimited in both scope and duration--it entailed the exclusive right to publish the copyrighted work in perpetuity. Thus, the concentration of copyrights in a few persons gave them control of the market. The Statute of Anne was designed not only to destroy the extant monopoly, but also to prevent its recurrence, that is to prevent the use of a copyright as a device that could be used to create a similar monopoly in the future.

There were three features of the statute that ensured the accomplishment of this goal: First, the statute made copyright, which had theretofore been limited to members of the Stationers' Company, available to any one entitled to it; second, it created the public domain for books by limiting the term of copyright; and, third, it ensured the continuation of the public domain by preventing the recapture of works that had gone into the public domain by requiring the creation of a new work as a condition for copyright.

A subsequent development that limited the efficacy of copyright as a device of monopoly was the doctrine that copyright protects not the idea, only the expression of the idea. The effect of this doctrine, the origin of which is apparently _Baker v. Selden_,[27] was important because it ensured the presence of fungible products in the market. While arguably the unique creative product of an artist is not fungible in the narrow sense, books of the same kind and dealing with the same ideas, for example novels, biographies and histories, are certainly fungible in the broader sense.

Against this background, it is easy to see that the problem of copyright and antitrust arises when a copyright owner seeks to use copyright as a device to control the market. That is, the intersection of copyright and antitrust law occurs when copyright is used to enhance, not merely to protect, the profit of the copyright owner. In practical terms, this is most likely to occur when copyright is owned by the entrepreneur, for example, as an assignee or employer for hire, not when it is owned by the author.

The cases clearly indicate that the courts have no difficulty in preventing the use of copyright to control the market in contravention of antitrust laws. Three types of works have been the subject of such efforts: books, motion pictures and computer programs, each of which is discussed below. There is also the problem of copyright in databases, and there is the special problem of the performing rights societies.

A. Books

In the early part of this century, book publishers, presumably as copyright owners, sought to extend the copyright monopoly of their books to a control of the market. In Bobbs-Merrill Co. v. Straus,[28] the publisher sought to uphold its right to prevent the retailer of its books from selling at a price less than that set by the publisher by reason of the copyright owner's right to vend. The Supreme Court refused to permit this. "The owner of the copyright in this case did sell copies of the book in quantities and at a price satisfactory to it. It has exercised the right to vend."[29]

B. Motion Pictures

The motion picture was an ideal product for which to use copyright in an attempt to extend the copyright monopoly in violation of the antitrust laws. Films were licensed for use, not sold, enabling the copyright owner to retain control of access; the copyrights were all in the hands of a few corporate entities, since motion pictures are works for hire; and the public access required to obtain the profit was limited to motion picture theaters.

The device for controlling the market was, of course, the license and the arguments of the copyright owners were logically unassailable--given their premise, that the copyright work was their property. If this was so, they were free to exhibit or not as they chose, and being free not to exhibit, they could exhibit on such terms as they wished.

Nevertheless, courts had little difficulty in rejecting their arguments. The point in issue was not whether the motion pictures were their property, but whether they were entitled to use their property in the way they did. In Interstate Circuit, Inc. v. United States,[30] the Supreme Court held that an agreement by distributors of motion pictures to require exhibitors to charge a fixed minimum admission price and not to show films as part of a double bill was a combination and conspiracy in restraint of trade. Since the restraints were at the initiative of the exhibitor, Interstate, and can be said to have been induced by it, the case did not deal directly with the rights of the copyright owner. But said the Court: "A contract between a copyright owner and one who has no copyright, restraining the competitive distribution of the copyrighted articles in the open market in order to protect the latter from the competition, can no more be valid than a like agreement between two copyright owners or patentees."[31] And "the fact that the restraint is made easier or more effective by making the copyright subservient to the contract does not relieve it of illegality."[32]

The motion picture industry is perhaps the prime example of a monopoly based on copyright. Yet as Interstate Circuit demonstrates, the problem was not copyright, but business practices. Indeed, given the nature of the industry and the large investments required for the production and distribution of the motion pictures, it is likely that the same practices would have evolved even without copyright. The idea that copyright protected the monopolistic practices was a makeweight, which had no more relevance to the real issue involved than if the subject involved had been sugar or automobiles. Thus, in United States v. Paramount Pictures, Inc.,[33] an antitrust action against the motion picture industry, the Court made it abundantly clear that copyright is no defense to monopolistic practices.

C. Computer Programs

The principle applied to books and motion pictures--that the monopoly of copyright cannot be used to control the market--has recently been applied to copyrighted computer programs. In Digityne Corporation v. Data General Corporation,[34] the court held that Data General's refusal to license its copyrighted operating system software except to purchasers of its hardware, the central processing unit, was an unlawful tying arrangement in violation of Section 1 of the Sherman Act and Section 3 of the Clayton Act.

The interesting point is that the court held that the copyright on the software "created a presumption of economic power sufficient to render the tying arrangement illegal per se." In short, the copyright did not give the copyright owner the right to use the copyrighted work as a means of enhancing the control of the market. The clear import of the holding is that the copyright owner had no right to license the use of his copyrighted work to competitors conditionally in order to maintain market control of its product.

The tying arrangement is a relatively simple problem because it is so clearly in violation of the antitrust laws. And it is worthy of note that courts in antitrust cases treat copyright purely and simply as a positive law concept. A more subtle problem is the claim of ownership to works generated by the use of a computer program and claims of ownership rights in adaptations made by owners, licensees or lessees of copies, an issue as to which courts may tend to treat copyright as a natural law concept, that is as property of the copyright owner. The antitrust problem arises here not only because of the concentration of economic power, but because of the possible extension of the copyright monopoly not only to a product, but to materials produced with the aid of the product.

The basis of this development is the right of the copyright owner to prepare derivative works, a right which has a superficially appealing logic when applied in the context of computer programs. The closest analogy to the problem as related to books is the translation of a book into a foreign language, which was held not to be an infringement in the mid-nineteenth century under the then existing copyright statute.[35] The analogy, however, is not appropriate, since a computer program involves a process as well as product. It is as if copyright protected not only the book, but also the printing process by which the book is produced. For a computer program is a work of use, that is a utilitarian work, and its use for the purpose for which it was intended should not result in even colorable claims by the copyright owner of the program. It seems clear, then, that the right of the copyright owner to prepare derivative works should be limited insofar as computer programs are concerned.

The real issue is whether this limitation should be extended to the use of a computer program to create other computer programs. The problem is essentially one of the extent to which copyright is to protect the idea, not merely the expression of the idea. The Final Report of CONTU deals with the issue,[36] but it does not deal with the basic issue of limiting the right to prepare derivative works. The opportunity for using this right to engage in monopolistic practies and claims suggests that it is an issue Congress should deal with directly.

D. Databases

One of the most difficult problems to deal with from an analytical standpoint is copyright in computer databases. Given the proposition that databases are copyrightable and that access to them is controlled by the copyright owner, databases are an exemplar of the problems of copyright and new technology: Protection of factual information over which the copyright owner maintains control of access to protect what is essentially only a service. A prime example of the service is OCLC, a national shared cataloguing network for libraries, of which some 4,000 libraries are members through regional networks, for example, SOLINET for the southeast.

The OCLC database, which contains 11,000,000 items, is nothing more than an electronic card catalogue, information which is provided by member libraries. OCLC has registered a claim of copyright on the database. The use of copyright to control access to information as to materials that libraries contain seems clearly to present a problem of monopoly unique in the annals of coyright. While there is little doubt that OCLC should be able to protect itself from piracy by commercial competitors, the use of copyright for this purpose gives it also the power to control access to the material by its members, who provided the information for the database in the first place.

The problem here is essentially one of unfair competition based on the misappropriation rationale, but arguably the preemption provision of the Copyright Act,[37] compels the owner of any database to use copyright law as its means of legal protection. In view of this, a rational solution to the problem of providing protection that database owners are entitled to would seem to be to limit the scope of copyright for databases, precedent for which is found in the limitation on the scope of copyright for sound recordings.

E. The Performing Rights Societies

A performing rights society is a central agency for licensing the performance of musical compositions. The two major ones are ASCAP and BMI which, between them, license the performance of almost all musical compositions in this country--some four million.

The copyright owner of a musical composition has the right to perform it, publicly for profit under the 1909 Act, and publicly under the 1976 Act. Considering the number of users of the public performance of music, the number of copyright owners and the difficulty of bringing the two groups together for any agreement, the copyright owner's right to perform would be of little value without a central licensing agency. Thus, the creation of ASCAP in 1914 and of BMI in 1939.

The performing rights societies are monopolies based on the copyright statute and, indeed, although more limited in scope, are very similar to the monopoly of the booktrade held by the Stationers' Company. ASCAP and BMI, as did the stationers, have used copyright as a device of monopoly to its fullest degree and consequently have encountered substantial antitrust problems.[38]

The problem here is the control of the source of a right for performing musical compositions, which effectively eliminates competition between, as of 1979, 22,000 members of ASCAP and 10,000 publishing companies and 20,000 authors and composers of BMI.[39] But without ASCAP and BMI, it would be virtually impossible for the copyright owner of musical compositions to enforce his right to be compensated for the performance of the music.

The question here is whether a minor change in the copyright statute could have avoided the necessity to resort to antitrust law for dealing with what is essentially a copyright problem. No one disputes the right of the copyright owner of a musical composition to be reimbursed for its use, and the problem is a simple one: The performing rights societies want to maximize their profits, the users of musical compositions want to minimize their costs. The dispute, then, is over the price and method of licensing. A provision in the copyright statute that such licenses must be granted on reasonable terms at reasonable prices with an antitrust exemption would avoid the necessity of resorting to an inordinately complex body of law that inevitably increases the cost of litigation. This solution, of course, leaves open the issue of what one means by reasonble, but at least it would focus the problem as one of copyright, not antitrust.

F. The Compulsory Recording License.

The compulsory recording license, an innovation in the 1909 Act to preempt monopoly problems in the recording industry, is worthy of note because of its success. There seems to be no instance of litigation involving monopoly or antitrust problems in the recording industry as a result of copyright. This is probably the premier example of a change in copyright law to cope with copyright problems resulting from new technology, and Congress used it further in a limited way in the 1976 Copyright Act, most notably in connection with cable television.

In view of the efforts of motion picture producers to secure a judicially created compulsory license in the Sony Corporation of America v. Universal City Studios,Inc.,[40] the compulsory license as a solution to copyright problems created by new technology warrants further discussion.

The major distinction between the compulsory recording license and the compulsory license sought in the Sony case is this: The former was imposed on the copyright owner for the benefit of competitors; in the Sony case, the effort was to impose a compulsory license on the user for the benefit of the copyright owner. The former thus diminished the utility of copyright as a device of monoply, the latter would enhance it; the former increased public access to the copyrighted work, the latter would arguably decrease it by imposing an additional cost on the user.

The essential issue here is whether copyright is to be used merely to protect the copyright owner's right to a reasonable profit or whether it is to be used to create a profit. The paradox here is that the same technology that makes copyright for new works so profitable also gives the user the means of reproducing those works with ease and without recompense to the copyright owner. The ultimate solution by disinterested persons will almost inevitably be determined in accordance with the view either that copyright is a statutory monoply, a positive law concept, or a proprietary concept, that is a natural right of the author.

IV. Copyright and Free Speech

The major problem of copyright and new technology may well be in the area of free speech for two major reasons. One is that new technology enables one to claim a copyright on the speech of others. A cameraman who videotapes a public speech, for example, has a copyright on the videotape, a claim enhanced by the fact that copyright is a concept of form not substance. Thus, Congress and the courts reject a content based copyright, primarily because of First Amendment considerations,[41] thereby giving a person the right to copyright the speech of another merely by recording that speech. The point is relevant primarily to televisions newscasts and public affairs programs. The other point is that new technology enables the copyright owner to retain control of access to the copyrighted work.

The danger here is that because copyright is viewed as a proprietary concept there will be a lack of sensitivity to the problem. As one court views the issue, "The first amendment is not a license to trammel on leglly recognized rights in intellectual property."[42] On this point, history can be enlightening, for copyright was a product of policies of censorship and press control in England and one of the many ironies of copyright history is that the origin of both the copyright clause and the First Amendment of the Constitution can be traced to the Licensing Act of 1662 in England.[43]

The relevance of these points, of course, is conditioned on one fact--that the subject of the copyright is material that can be said to be vested with a public interest. The distinction between public and private interest in this regard is reflected in the idea/expression of the idea dichotomy. The public interest in ideas is such that they are not subject to copyright. The corollary of this proposition is that there is no significant public interest in one's particular expression of an idea. Thus, while ideas are vested with a public interest, the particular expression of ideas is vested with a private interest.

The distinction works best in regard to creative works. The idea of a boy and girl from feuding families falling in love and suffering fatal consequences for their passion cannot be the monopoly of one author even if that author is a Shakespeare. Nor can the fact that Michaelangelo sculpted a statue of David preclude other sculptors from making a statue of a nude male figure. Art expresses not facts, but the artist's perception of mirrored facts chosen, expressed and integrated in a unique way. The truth the author is concerned with is the truth of coherence, not the truth of correspondence. But because copyright is not a content based concept, this distinction between creative and factual works is ignored by the statute.

When the copyright owner (not necessarily an author) is concerned with the truth of correspondence, different considerations come into play, and the idea/expression of the idea dichotomy becomes less functional. The material is no longer mirrored facts, but actual facts, and it is the accuracy of the facts which determines the merit and value of the material. The prime examples are news reports, biographies, history and informational studies and reports generally. In a special category is law, which the Supreme Court long ago determined is not subject to copyright. These materials are vested with a large public interest and that interest is one of access. This is because informational materials, unlike creative materials, induce reliance on the part of the recipient. The viewer of televison newscasts, for example, rely on the report of information which characterizes public officials and their conduct.

The intersection of copyright and free speech rights, then, can be said to occur when the copyrighted material is vested with a large public interest. It becomes a problem when the material is not published in fixed form and access to it remains subject to the copyright owner's control.

A. The Potential Conflict between Copyright and Free Speech

The potential for conflict between copyright and the free speech clause has existed since the adoption of the Bill of Rights in 1790. That it has not been realized is explained by two factors. First, as stated above, until the 1976 Copyright Act, all copyrighted works, with one minor exception, had to be published in fixed form for public distribution. Second, it is only recently that the Supreme Court has interpreted the right of free speech to encompass the right to hear as well as the right to speak. Thus, if the copyright owner may use copyright to deny access to copyrighted materials, he is in a position to deny an individual his free speech rights. This is particularly true when the individual who seeks access to the material is the subject of the material or when the material relates to political or governmental affairs or news events in general

B. The Conflict of Copyright and Free Speech Created by Technology

The free speech defense in copyright infringement actions has generally been rejected by the courts, which have used the fair use doctrine to resolve any problems of conflict. For the most part, the rejection of the free speech defense has been sound both because the controversies have been between competitors and the copyright has not been of material vested with a large public interest. This means either that public access to the material involved is not a matter of major consequence or that the copyright owner is providing adequate public access. There seems to be no reason to give a competitor a First Amendment right to provide public access to another's words so long as the copyright owner is providing that access.

The potential for conflict between copyright and free speech thus centers on the public's right of access, a right that has not been explicitly recognized in copyright law. This is because until recently it has not been a problem. In fact, however, the right was recognized implicitly in the traditional requirement for statutory copyright, publication of the copyrighted work.

Since that requirement is no longer present and since in many instances the copyright owner can obtain the profit from the use of the copyrighted work while retaining control of public access to it, it is necessary to give explicit recognition to a right of public access if conflict between copyright and free speech is to be avoided.

The Ford Memoirs case, Harper & Row Publishers, Inc. v. National Enterprises,[44] demonstrates, however, that the arguments relative to access are not all anti-copyright in nature. In that case, defendant tortiously acquired a prepublication manuscript of a book shortly to be placed on sale and used it as the basis of a magazine article. The Second Circuit held that the defendant was protected by the doctrine of fair use. The point the court overlooked is that the copyright owner was going to provide more than adequate public access to the material. Thus, the failure of the court to recognize that the core issue in copyright is access to the copyrighted work led it to a doctrinaire application of copyright that arguably damages the effective operation of the copyright law without any commensurate gain to the public good.

The Duncan case, discussed above in relation to the right of privacy, on the other hand, places copyright above the right of access. For in that case, the Eleventh Circuit sanctioned the use of copyright to prevent the subject of a news story from having reasonable access to a record of what was reported about him over the public airwaves. The relevant point about the case is that it goes beyond giving the copyright owner control of access to its own words and gives it control of access to the words of others.

This, of course, is the essence of censorship and to the extent copyright is used to prevent access to another's words, it poses a real threat to free speech rights.

The Duncan and Ford Memoirs cases taken together show why the fair use doctrine as it is presently constituted is an unsatisfactory solution to the problem of conlfict between copyright and the First Amendment. First, that doctrine is too amorphous and confused. Second, the test for copyright is form, not content. Thus, as the Eleventh Circuit made abundantly clear, the fact that a user is the subject of the copyrighted work is no reason for applying the fair use doctrine. But the most readily available alternative to raise the fair use doctrine to a constitutional level under the First Amendment is to create a serious threat to economic interests protected by copyright law.

C. A Proposed Solution

The solution to what appears to be a dilemmatic issue, however, is obvious if not readily apparent. Rather than bring the First Amendment per se into copyright issues, the better solution is to recognize that the copyright clause incorporates First Amendment values. There is a basis for doing so in reason and precedent.

As to reason, the copyright clause and the free speech clause deal with the same subject matter, the expression and communication of ideas, one from an economic, the other from a political, standpoint. The copyright clause gives Congress the power to enact laws protecting the economic interest of the author--to encourage dissemination of the work. The free speech clause denies Congress the power to make any law to prohibit the dissemination of ideas for political, that is for any, purpose. The copyright clause and the free speech clause are thus complementary, not conflicting.

Reason here is supported also by precedent in the creation of statutory copyright in England, which was the progenitor of the American copyright. The stationers' copyright in England was a device of both monopoly and censorship, the latter because it received its legal support only in decrees and acts of censorship. For present purposes, the most important of these was the Licensing Act of 1662.[45] For it was the final demise of this statute in 1694 that led to the enactment of the Statute of Anne in 1709.[46]

As discussed above, the Statute of Anne was designed to destroy and prevent the recurrence of the booksellers' monopoly established by booksellers utilizing the stationers' copyright. Whether by design or otherwise, the Statute of Anne also negated the use of copyright for purposes of censorship. The point has seldom been recognized, but the effect could hardly have been otherwise, since the monopoly and censorship aspects of copyright were too closely interrelated to be separated.

This point is made clearer when one realizes that the provisions of the Statute of Anne were based on provisions in the Licensing Act. And there are two sections of the Statute of Anne that can be said to be anti-censorship provisions, section V and section VII. Section V provided that nine copies of newly copyrighted books were to be provided to various libraries, "the royal library, the libraries of the universities of Oxford and Cambridge, the libraries of the four universities in Scotland, the library of Sion College in London, and the library commonly called the library belonging to the faculty of advocates at Edinburgh respectively." The fact that this provision may well be an extension of the earlier custom of providing books for the library at Oxford at the instance of Sir John Bodley does not militate against its effect as a move that precluded the continued use of copyright as a device of censorship. Moreover, the Statute of Anne was, according to its title, "for the encouragement of learning," a purpose wholly inconsistent with censorship, either private or public.

Section VII was specifically directed against a provision of the Licensing Act of 1662 which enabled the licensers to control the importing of books from beyond the seas. It read: "VII. Provided, That nothing in this act contained, do extend, or shall be construed to extend to prohibit the importation, vending, or selling of any books in Greek, Latin, or any other foreign language printed beyond the seas; any thing in this act contained to the contrary notwithstanding."

Whether the draftsmen of the Statute of Anne were conscious of the anti-censorship effect of these provisions is problematical. And it is almost certain that Congress in 1790 was not conscious of this, since Congress used section VII as the basis of section V of the 1790 Act, which legalized the piracy of foreign books. But it makes little difference. The point is that to recognize that the copyright clause, and therefore copyright, incorporates First Amendment values is not only consistent with history, but may be necessary if the constitutional purpose of copyright, the promotion of learning, is to be fulfilled in an age of technology.

V. Copyright Fictions and New Technology

One of the consequences of the positive law-natural law conceptual basis of copyright is the extent to which copyright law is based on fictions, a development which reached a new height in the 1976 Copyright Act. The four core concepts of copyright are author, writings, creativity and publication. But, of course, copyright is not limited to authors or writings and the requirement of creativity was long ago reduced to originality in the sense of the absence of copying. And publication is distinguished from performance, as a result of which a book placed on sale which no one buys is published, but a television program viewed by millions of people is not.

Legal fictions are a useful device and for the most part legitimate while limited to the purpose for which they are created. The danger is that they tend to develop of life of their own and are applied to new developments with little thought as to, and less awareness of, the consequences their new use entails. Three fictions will be discussed here: the fiction that copyright is an author's right; and the fiction that computer programs in machine readable form are writings and that copyright for these programs protects not the idea but the expression of the idea, and the fiction that performance is not publication.

1. The Fiction that Copyright is an Author's Right

The existence of so many fictions in the law of copyright suggests that the concept itself is based on a larger fiction--that copyright is in fact an author's right. The copyright clause, by reason of which Congress is empowered to grant copyright only for authors, is the basis of the fiction and to refute a constitutionally based fiction is a formidable task. The problem is compounded by the emperor's clothes syndrome, but one need only see how copyright actually functions to appreciate the fact that copyright is not an author's right.

The point here is not that copyright should or should not be an author's right, but that to say it is and then to treat it as something else creates problems, as the confusion over the conceptual basis of copyright as positive law or natural law demonstrates. These problems become crucial when applying copyright to new uses to accomodate new technology. Thus, the notion of copyright as an author's right has effectively obscured the true nature of copyright law as statutory unfair competition based on the misappropriation rationale. The point is most clearly demonstrated by _International News Service v. Associated Press_,[47] in which copyright protection was given to uncopyrighted copyrightable materials.

The problem is perhaps best exemplified by _Williams & Wilkins Co. v. United States_,[48] in which the publisher of medical journals sought to hold the United States liable for copyright infringement because of the Xeroxing of articles from its publications by governmental agencies. The case was heard by a total of sixteen judges, eight in favor of fair use, eight in favor of infringement.

Yet, little was made of the fact that the authors of the articles, scholarly publications, almost surely were not compensated for their efforts. "The articles published in the journals stem from manuscripts submitted to plaintiff. . . by physicians or other scientists engaged in medical research."[49] It is, of course, one thing to provide protection for an author, another to provide extra profit for an entrepreneur. It is not necessary to take a position to see that the issues involved in these two different questions are very different.

While the plaintiff in Williams & Wilkins failed to obtain the compulsory license it was seeking, the issue is by no means extinct. The point is that issues such as those involved here should not be decided on the basis of the false notion that granting the copyright owner relief in these situations will necessarily benefit the author. The real issue is whether the copyright law should be used to enhance, rather than protect, the profit of the copyright owner. Arguably, the task of creating a profit is one for the market place, not the halls of Congress.

2. The Fiction of Computer Programs as Writings

Since a computer program is essentially nothing more than an algorithm placed into a machine, distinguishing the idea from the expression of the idea is the same as saying that 2 x 2 = 4 is different from II x II = IV. In other words, it is the logic, not the symbol that is significant, and the distinction of idea and expression of idea in this context is a distinction without a difference. Moreover, since the program is essential to the operation of the machine, copyright on the program can be said to be a copyright for the process as well as the product.[50]

This is not to say that computer programs are not entitled to legal protection, but it is to raise a question as to whether copyright is an appropriate vehicle to provide that protection. There are two points here. The first is that copyright law does not provide sufficient protection; the second is that to resort to the fiction necessary to employ copyright for this purpose poses a threat to the copyright law itself as a body of reasonably coherent principles.

The two points are interrelated in the following way. The function of copyright can be said to be to promote learning, that is to ensure public access to copyright material. The purpose of copyright can be said to be to protect the profit of the copyright owner. If public access to the copyrighted work is the function of copyright, the access cannot properly be limited and therefore will include the right to go into the work, for example, in the form of reverse engineering. Under copyright law, the fair use doctrine would surely permit this. On the other hand, to permit this would defeat the purpose of the protection, that is protecting the profit of the copyright owner. This means that access to the work must be limited. And if access to one type of copyright work is limited, by analogy access to all types of copyrighted work can also be limited. In this way, copyright for computer programs poses a threat to the function of copyright.

The dilemma here, of course, results from the fact that a computer program involves a process as well as a product in the same way that a book on a new method of bookkeeping does. One way out of the dilemma is to create a sui generis copyright limited in term but more comprehensive in scope than is presently provided. Such a copyright would be directed at the precise problem here involved: unfair competition based on the misappropriation rationale. A competitor would be denied the right to use a computer program in the creation of a computer program. Since the ideas to create computer programs are in the public domain, the complete legal protection of the particular use and the application of particular ideas would not constitue an impediment to the progress of science.

One aspect of such a sui generis copyright could well be a price control provision (because of the extent of the monopoly conferred) to be applied in the absence of a willingness to license the product for use by competitors. The condition for and the contours of such a copyright, of course, is a matter to be determined in light of needs of the industry consistent with the public welfare.

3. Performance and Publication

The concept of performance of copyrighted works which does not result in publication may be the most important fiction in the 1976 Copyright Act insofar as the interference of copyright with the law of privacy, antitrust and free speech is concerned. To recognize that a television broadcast which is viewed by 20,000,000 people is not published, but a book placed on sale which no one buys is published is to appreciate the Alice in Wonderland nature of the fiction.

The critical point ignored in legislating this fiction is that it removes the traditional quid pro quo of statutory copyright--the dissemination in fixed form of the copyrighted word for public use. In short, it is the concept of performance that enables the copyright owner to profit from, and retain control of access over, the copyrighted work. Moreover, if Duncan, discussed above, is good law, the copyright owner of works to be performed only can obtain the benefit of copyright for works not yet created and as to which it is not necessary to comply with the copyright statute in order to obtain protection.

The origin of the rule that performance does not constitute publication is an eighteenth century English case in which the plaintiff author enjoined the publication of a farce, Love a la Mode, which defendant had transcribed from a presentation on the stage. The court held that a stage presentation did not constitute a gift to the public, as the right of printing was a valuable right.[51] The Supreme Court adopted the rule as to stage productions in Ferris v. Frohman,[52] and the rule was adopted for other media in the 1976 Copyright Act.

In view of the unperceived consequences of the rule in enhancing the scope of copyright, it is one which Congress should reconsider.

VI. Conclusion

New technology has expanded the scope of copyright beyond its traditional concerns of providing the author with a reward to induce him to create works for the benefit of society. Under this traditional view, the essential problem of copyright was to balance the competing interests of author and user. In fact, this view of the problem was incorrect. The concern should have been to balance the interest of three groups--the author, the entrepreneur, and the user. The point was not realized because the interest of the author and entrepreneur were deemed to coincide, and the entrepreneur, by reason of either assignment from the author or being an employer for hire was placed in the shoes of the author.

To resolve copyright problems created by new technology, this tripartite division of interests should be recognized. This is because the problems that new technology gives rise to are primarily between two entrepreneurs or an entrepreneur and a user. To the extent that there is a conflict between the author of a creative work contributing to the culture of society and the user of the that work, the decision must generally be in favor of the author. As a creative artist, the author poses little threat to another's right of privacy and does not violate another's free speech rights.

The power that copyright law creates is vested in the entrepreneur, and if the presence of power does not always corrupt, it at least remains subject to abuse. Copyright for the entrepreneur thus intersects with the rights of an individual when the subject of the copyright is information about the individual; with the rights of a group, competitors, when the copyright is is used as a device to control the market; and with the rights of the public when the subject matter of the copyright is vested with a large public interest and access to the work remains in control of the copyright owner.

The complexity of the problems here suggests that traditional principles and received learning are not equal to the task of providing solutions. New ideas must be sought, but the starting point is an old one: The copyright owner, whether author or entrepreneur, needs to and should be protected in his right to receive a reasonable economic return for the use of the work. The new idea here is that copyright should not be used to create, as opposed to protect, the profit of the copyright owner.

With this as a starting point, it seems reasonable to suggest that the time has come to recognize that copyright law is developing into two separate bodies of law--one for taditional type works, the other for works of new technology. The time has come, then, to accept the reality that there should be two basic kinds of copyright--one for the author as creator and one for the entrepreneur as marketer. The essential distinction here would be that the former would be both proprietary and personal in nature, the latter primarily regulatory in nature. The recognition of this division would serve two purposes. First, it would constitute a recognition of the value of the author and artist to our society which the law of copyright, because it functions to serve the entrepreneur, has in fact failed to recognize. Second, and more important, it would provide a basis for separating out the issues and enable law makers to deal with the problems in terms of the issues they present unclouded by the spectre of the rights of an author as author.

This approach would solve the major jurisprudential impediment to dealing with copyright issues: the fact that copyright as a legal concept combines natural law and positive law in an unsatisfactory relationship.

FOOTNOTES

[1] Section 12 of the 1909 Copyright Act.

[2] 17 U.S.C. 102(a).

[3] The fact that the copyright protects the product that is broadcast, that is the film or videotape, should not be allowed to obscure the point that television broadcasting is a service, not a product.

[4] 17 U.S.C. sec. 102(b).

[5] 17 U.S.C. sec. 102(a).

[6] 17 U.S.C. sec. 114.

[7] 17 U.S.C. sec. 115.

[8] Mazer v. Stein, 347 U.S. 201 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts.' Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered.")

[9] Board of Education v. Pico, 457 U.S. 853, 867 (1982); Stanley v. Georgia, 394 U.S. 557, 564 (1969) ("It is now well established that the Constitution protects the right to receive information and ideas.")

[10] See Williams & Wilkins Co. v. United States, 487 F.2d 1345 (Ct. Cl. 1973), aff'd by an equally divided court, 420 U.S. 376 (1975). A recent story in the May 7, 1985, issue of The Wall Street Journal, p. 64, deals with an action filed by publishers of scientific journals against Texaco, Inc. for violating copyright laws by "large-scale, covert, unauthorized photocopying" from the journals for its research and development program. "The complaint purports to represent about 600 publishers that are registered with the Copyright Clearance Center Inc., a New York-based noprofit corporation that grants permission to photocopy from the publishers' works."

[11] Sony Corporation of America v. Universal City Studios, Inc., 104 S. Ct. 774 (1984).

[12] As the Supreme Court said in Sony, "the natural tendency of legal rights to express themselves in absolute terms to the exclusion of all else is particularly pronounced in the

history of the constitutionally sanctioned monopolies of copyright and patent." 104 S. Ct. 784 n. 3.

[13] See, *e.g.*, Twentieth Century Music Corp. v. Aiken, 422 U.S. 151 (1975).

[14] See L. Patterson, Copyright in Historical Perspective (1968).

[15] 8 Anne, c. 19.

[16] Donaldson v. Becket, 4 Burr. 2408, 98 Eng.Rep. 257, 2 Bro. P.C. 129, 1 Eng.Rep. 837 (H.L. 1774).

[17] 33 U.S. (8 Peters) 591 (1834).

[18] See, e.g., Holmes v. Hurst, 174 U.S. 82 (1899) (work forfeited for publication without notice); Mifflin v. R. H.White & Co., 1908 U.S. 260 (1903) (same rule).

[19] Bleistein v. Donaldson Lithographing Co., 188 U.S. 239 (1903) (advertisements copyrightable despite fine arts limitation in the statute); Mazer v. Stein, 347 U.S. 201 (1954) (statuette used as base for table lamp copyrightable).

[20] Warren & Brandeis, The Right to Privacy, 4 Harv. L. Rev. 193 (1890).

[21] W. Keeton, Prosser & Keeton on Torts, Ch. 20 (5th ed. 1984).

[22] 17 U.S.C. sec. 102.

[23] 744 F.2d 1490 (11th Cir. 1984).

[24] 104 S. Ct. 774 (1984).

[25] See Harrison v. Maynard, Merrill & Co., 61 F. 689 (2d Cir. 1894); Independent News Co. v. Williams, 293 F.2d 510 (3rd Cir. 1961).

[26] 342 Mass. 515, 174 N.E. 2d 376 (1961).

[27] 101 U.S. 99 (1879).

[28] 210 U.S. 339 (1908).

[29] 210 U.S. 339 at 351. See also, Scribner v Straus, 210 U.S. 352 (1908) and Straus v. American Publishers' Association, 231 U.S. 192 (1913).

[30] 306 U.S. 208 (1939).

[31] 306 U.S. 206 at 230.

[32] Id.

[33] 334 U.S. 131 (1947).

[34] 734 F.2d 1336 (9th Cir. 1984).

[35] See Stowe v. Thomas, 23 Fed. Cas. 201, No. 13,514 (E.D.Pa.1853) (German translation of Uncle Tom's Cabin)

[36] Final Report, CONTU, pp.18-23 (1978).

[37] 17 U.S.C. sec. 301.

[38] See, e.g. Broadcast Music, Inc. v. Columbia Broadcasting System, Inc. 441 U.S. 1 (1979)

[39] Id.

[40] --U. S.--, 104 S. Ct. 774 (1984).

[41] Mitchell Brothers Film Group v. Cinema Adult Theater, 604 F.2d 852 (5th Cir. 1979) ("Congress in not enacting an obscenity exception to copyrightability avoids substantial practical difficulties and delicate First Amendment issues.") See also Bleistein v. Donaldson Lithograph Co., 188 U.S. 239 (1903); Belcher v. Tarbox, 486 F.2d 1087, 1089 (9th Cir. 1973).

[42] Dallas Cowboys Cheerleaders, Inc. v. Scoreboard Posters, Inc., 600 F.2d 1184, 1188 (5th Cir. 1979).

[43] 13 & 14 Car. II, c. 33.

[44] 723 F.2d 195 (2d Cir. 1983), cert. granted, 104 S. Ct. 2655 (1984).

[45] 13 & 14 Car. II, c. 33.

[46] 8 Anne, c.19.

[47] 218 U.S. 215 (1918).

[48] 487 F.2d 1345 (Ct. Cl. 1973), affirmed by an eqaully divided court, 420 U.S. 376 (1975).

[49] 487 F.2d 1345, 1347.

[50] See P. Samuelson, "CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form," 1984 Duke L. Jour. 663 (1984).

[51] Macklin v. Richardson, 2 Amb. 694, 27 Eng. Rep. 451 (1770).

[52] 223 U.S. 424 (1912).

Technological Methods for Protecting Software

Paul Goldwhite

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Technological Methods for Protecting Software

I. Introduction

This paper is part of the Office of Technology Assessment's report, "Intellectual Property Rights in an Age of Electronics and Information." The OTA report will address the full range of issues concerning intellectual property rights in a changing technological environment. Technological innovation, including the development of computers and software, has forced the periodic reinterpretation and evolution of intellectual property rights law. This paper evaluates the ability of technology to protect the property rights to intellectual creations that exist in software, and identifies and discusses some of the implications — social, legal, economic, and technological — of technological protection of software.

Currently, there is confusion about which intellectual property laws apply to software,[1] and how they should be applied.[2] In the software industry, there is discussion about, and dissatisfaction with, the intellectual property laws.[3] Some software producers are looking for ways, other than legal, to protect their products. They are investigating technological methods for protecting the intellectual property rights of their software.[4]

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[1] Some software can be copyrighted (17 U.S.C. sec. 102), some patented (Diamond v. Diehr, 450 U.S. 175 (1981). It may be difficult to determine which property right applies to which software.

[2] For example, should the appropriate law, whichever it is — copyright or patent — apply to object code, source code, or both?; Is a computer-made abstract a derivative work?; and so forth.

[3] In November 1983, four leading producers of software for microcomputers founded the Software Protection Fund to reduce illegal copying of microcomputer software. John Gallant, "Fund forms to combat piracy," Computerworld, February 27, 1984, p. 7.

Technological protection of software offers some attractive features. If it were effective, software producers would not feel compelled to restrain research and development of software for fear of illegal copying that might reduce profits.[5] The confusion over the place of software among the various intellectual property laws would become less critical. Societal norms concerning software copying would also become less important because people would not be able to violate those norms.

Technological protection is no panacea, however. It would impose costs on society. Depending upon the specific type of protection, it would increase the cost of either software, hardware, or — more likely — both. It might inconvenience both producers and consumers, to varying degrees, thus detracting from the inherent flexibility that makes computers and software so useful. Technological protection suffers as a means of protecting intellectual property rights because it ignores the Constitutional compromise between the public welfare and the profit-making of intellectual creators.[6] Technological protection addresses only the profit-making side of the creation equation, and not the public welfare side.

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[4] For example, microcomputer software producer Ashton Tate of Culver City, California, made a 20 percent equity investment at a cost of $500,000 in Vault Corporation, a Westlake, CA, developer and marketer of a technological protection system. From Vault Corporation literature, October 11, 1983.

[5] There is a widely held notion in the software industry that software producers are hesitant to commit resources to development of new software because of the damage that illegal copying could do to their potential profits. "While it's true that minimizing software piracy will increase software revenues, the issue is much larger than that. Left unchecked, software piracy threatens to shortchange all personal computer users by inhibiting the creation of new programs." David Bunnell, "Innocent Victims of the War Against Software Piracy," PC World, June 1984, p. 13.

This paper starts out by examining what it is about the technology of computers and software that has raised questions about intellectual property rights. Sections III and IV, which identify and discuss reasons for protecting software and reasons for copying software, describe the environment in which the question of technological protection will be debated. Section V discusses the relationship between software packaging and distribution, and technological protection. Section VI describes a few actual and potential technological protection mechanisms, and how differences in those mechanisms would influence society's use of software. Section VII asks how feasible and effective technological protection would be. Section VIII discusses the implications that technological protection could have for the software "supply side" -- creators, packagers, marketer, and distributors — and for software consumers — the public. The final part of the paper examines the relationship between legislation and technological protection, and trends in technology that may influence, or be influenced by, technological protection of software.

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[6] The United States Constitution, in article I, section 8, clause 8, empowers Congress to enact legislation "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their writings and discoveries; . . ."

II. Computer Software

II.A. Definition of software

Software is given a limiting, technical, definition here because only in this way will it be clear which categories of creative works can exist in software. For this paper, software is defined to be coded information in a computer-readable form. This includes computer instructions (programs), text, and data. I say "coded information" because I wish to specify only information that is discrete, or digitized — coded in, e.g., binary symbols (zeros and ones). By "computer-readable," I mean that it must be in some medium or come in some form that is directly accessible to a computer, e.g., on floppy disks or magnetic tape. I specifically exclude visual and audio nondigitized information because, although such information may be computer-readable by today's technology,[7] its inclusion would vastly expand the scope of this report.[8]

This definition does, however, include data as well as programs (some, perhaps most, definitions of computer software cover programs only).[9] This definition is appropriate for this paper because most forms of technological software protection do not discriminate between data and programs: If technological protection safeguards programs, it protects data as well. Furthermore, with computer programs using "artificial intelligence," the distinction between data and programs will fade.

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[7] For example, optical character readers are capable of scanning printed text from, say, a book and processing that text into computer-readable form. Currently, however, this process is cumbersome and expensive. I exclude such text in its printed form from my definition of software, but include it if it occurs in digital, directly computer-readable form, e.g., on a magnetic disk. The distinction is, in principle, artificial because both versions of the text — printed and magnetic — contain the same information; it is only in their medium that they differ. This distinction will fade: The various media — e.g., paper and magnetic — for a given piece of creative work will become interchangeable as computers are equipped with more powerful and versatile sensory inputs such as microphones, televisions cameras, electronic "noses," touch-sensing devices, and so forth.

[8] The complete OTA report will cover the full range of intellectual properties, including those in visual and audio nondigitized form.

[9] Technically speaking, all software is data. Programs are a special kind of data that (continued)

The amount of information and intellectual property that is encompassed by this definition is expanding with time.[10] Given that many types of intellectual works are more easily created, marketed, distributed, and consumed with the aid of a computer, the use of software as a medium for intellectual property will increase. Moreover, as more intellectual property is mediated through computers, the use of software by the public will increase.

II.B. The technological nature of software causes the copying problem

The technological nature of software, in addition to the increased use of software by the public, has put pressure on intellectual property law.[11] The same technological factors that make software useful also make software copyable. All information and

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are executable. A given set of data can be executed under some circumstances, and that same set of data can be "just data" (nonexecutable) under different circumstances.

[10] "Data [software] transmission costs are falling to levels close to those of the media of mass communication . . .[E]lectronic messages cease to be simply curt aids to transactions; they come to be be used for news, education, ideas, and discussion." Ithiel de Sola Pool, Technologies of Freedom (Cambridge: Harvard University Press, Belknap Press, 1983), pp. 98-99.

[11] In the early days of computers — before the rise of the personal computer — only a few skilled professionals could operate computers. Software was often customized to fit the needs of each individual consumer. This was not difficult because there were few users then. There was no point in copying software illegally because each consumer had different, specialized, applications. Today, many users have similar applications for software, hence the rise in mass-marketed software. Conversation with Dr. Zalman A. Shavell, Office of Technology Assessment, August 9, 1984.

intellectual property that exists in software is broken down into sets of simple symbols — "bits." A bit, in whatever form it takes, is either a one (1) or a zero (0). Sets of bits may be large, and information contained in the sets may be complex; nevertheless, every set is composed of these simple bits. The process of software replication does not depend on the size or the complexity of the sets, only on the reproduction of every single bit in the set, one by one.[12] It is easy to replicate each bit reliably because a bit is simple -- it is either a one or a zero, never anything in-between.[13] Because of its simplicity, a bit can never degrade or wear out, regardless of how many times it is copied or transmitted.[14] Software will not degrade because the individual bits from which it is composed will not degrade. Therefore, software is infinitely copyable.

The technological nature of software makes it easy and reliable to copy as many times as desired, and this is why people are seeking technological ways to control copying. In addition, electronic and optical technologies make the replication and transmission of software fast. Moreover, the cost of transmitting software is falling,[15]

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12. With parallel processing computers it will be possible to replicate sets of bits not one by one, but several at a time. This will not change the fundamental process of replication; every bit will still be reproduced reliably.

13. Digital communications and computers of the future will not necessarily be binary; they may use a many-valued logic system. Eitan Abraham, Colin T. Seaton and S. Desmond Smith, "The Optical Computer," Scientific American, February 1983, p. 93.

14. Errors may occur in the transmission or copying of a bit — a one might be reproduced where a zero ought to have been, or vice versa — but this is different from degradation. The latter is a gradual, inevitable process; the former is accidental and probabilistic. Errors can be reduced to a negligible level by error-checking programs, redundancy, and selection of the best software medium.

15. See note 10.

as is the cost of storing software.[16] Finally, the cost of software copying devices, computers, is falling, partly because of improvements in microcircuit technology,[17] partly because of market forces.[18] All of these factors combine to make software copying, both legal and illegal, more attractive.

These same factors, however, also contribute to the flexibility and utility of software. One should be able to do many things with software, such as modify it, link it to other software, transfer it from one memory device to another, and so on — all with ease. Along with flexibility comes reproducibility. The internal operation of a computer requires that software be reproduced continually. Software must also be easily reproduced if one intends to distribute it on a large scale.[19]

The convergence of communications and computer technologies is also making software copying more attractive.[20] Communications technologies are used in the movement or transmission of data. Computer technologies are used in the manipulation of data. Copying requires a merging of movement and manipulation. A technological advancement that builds on this convergence, and would make software copying easier, is the fast digital network. It is possible that in the future most homes and offices will be linked by a fast digital network, much as they are linked by the telephone system today. A digital network is a telecommunications system/computer network that is capable of transmitting digital data from one location to another.[21] The fast digital network would give users the ability to copy software with the ease of a "computerized" telephone call.

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[16] The cost per kilobyte of software storage is falling due to technological advances. For example, the cost for floppy disk storage is about 61 cents per kilobyte; hard disks, 10 cents; and optical disks, about one cent per kilobyte. Rick Cook, "Seeing Is Retrieving," PC World, July 1984, p. 92.

[17] Philip H. Abelson, "The Revolution in Computers and Electronics," Science, 12 Feb. 1982, p. 751.

[18] The computer market has expanded, increasing competition between vendors and enabling manufacturers to use high-volume low-cost manufacturing methods.

[19] Software analyst Mike Wilding of Atari, who has special responsibility for reducing illegal copying, points out that ". . . it is in the nature of the material [software] that it must be copyable to be produced." Quoted by Kelvin Gosnell, "Happy days for software pirates," New Scientist, May 12, 1983, p. 377.

[20] This convergence is evident from the growing volume of communications that is digital — the "language" of computers — and the growing number of computer applications that require communication. Evidence for the convergence is also supported by convergence of the communications and computer industries, e.g., AT&T's rapid entry into the computer business following deregulation.

III. Reasons for using technological methods to protect software

III.A. Protecting software to ensure intellectual property rights

Preventing unauthorized copying of intellectual property is a major reason for using technology to protect software. Creators of works that exist in software often want to ensure that no one copies their software without paying the creator or seeking his permission.[22] Protection of intellectual property is both a cause and a result of technological software protection. It is a cause in the sense that it helps motivate the search for technological software protection. It is a result in the sense that there are reasons other than intellectual property protection that motivate the search for technological software protection.

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[21] The current telephone system can do this now, but it is slow — it takes too much time to transmit blocks of digital data. The new network would be "fast" because it would have a higher bandwidth that would enable it to carry more information at once.

[22] There are two reasons why creators want to prevent unauthorized copying of their works — to protect their pecuniary rights, and to protect their moral rights. Technological protection safeguards pecuniary rights to the same extent that it safeguards moral rights — it prevents illegal copying. "According to Continental tradition . . . the author retains the right to have his name associated with his work, and to stop unauthorized versions of his work from appearing, whether or not he has sold, given away, or otherwise disposed of his pecuniary rights with respect to the work." Martin Hayman, "Software Protection in the United Kingdom," Byte, October 1981, p. 139.

III.B. Protecting software to safeguard security and privacy

The desire to keep information private or secret also stimulates the search for technological methods of protecting software. The information may range from personal, e.g., job performance or credit card number, to industrial secrets such as the formula for Coca Cola^{TM}, to classified information. As both intellectual property and private or "secure" (secret) information come to be entered, stored, manipulated, and retrieved on computer systems -- perhaps even on the same computer systems -- there is a convergence of intellectual property issues and privacy issues. Both intellectual property and private/secret information can exist in computer software form. Both can be protected by technological means.[23] Unrestricted duplication and dissemination of both intellectual property and private information may result in large financial losses. Given these similarities, it is not surprising that the handling of both of these kinds of information in computer systems is converging.

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[23] There are indications that the software industry is taking note of the duality between protecting intellectual property and private information. The Vault Corporation, of Westlake, CA, markets a product that protects programs, "Prolok," and a product that protects confidential information, "Filelock." Both products use basically the same technology, imprinting an uneraseable "fingerprint" by "removing some of the diskette's iron oxide coating, making it impossible to copy." Marsha Johnston Fisher, " 'Filelock' Protects Confidential Data," MIS Week, June 20, 1984, p.49.

There is a considerable difference, however, between the way the law handles intellectual property and the way it handles private or secret information. One can protect software using whatever means are legal -- technological and otherwise -- but there is a contradiction between protecting intellectual property and private information in the same manner. Intellectual property, by virtue of its existence in law, is supposed to be disseminated. Private information is supposed to be restricted. The law recognizes the distinction between these two types of information; the technology does not. There might be a temptation to treat violations of intellectual property law and violations of privacy law in the same manner since both violations may come to involve identical actions — defeating a technological protection mechanism.[24]

IV. Reasons for Copying Software

Identifying the reasons for copying software helps identify those sectors of the population that will be affected by technological protection mechanisms that prevent copying. In addition, by understanding why various sectors of the population copy illegally, one can arrive at an understanding of how these groups will be affected by technological protection of software. Each group with a different reason for copying illegally would be affected differently by technological protection.

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[24] Here is an example of how laws regarding private information and intellectual property could merge in the future, when the fast digital network described earlier is a reality. We shall assume that the network has some form of standard technological mechanism built in to prevent unauthorized access. Perhaps a special identification card is required for access; the details are unimportant for this example. It might be possible, in some ingenious way, to circumvent the prevention mechanism in a manner analogous to the use of the old "black box" tone generators once used to make free long distance telephone calls. The regulators of this digital network (Federal, State or local), mindful of the potential for a technological "rip-off," might pass a law against tampering with the prevention mechanism. This law would not distinguish between the reason for tampering because there would be no lawful justification for any tampering whatsoever. It would be easy to use technological means, e.g., electronic monitoring of the network (see section X.B.) to detect tampering and so enforce this law. In the electronic, "post paper," age, however, it might be difficult to detect invasions of privacy and secrecy or violations of intellectual property rights. Therefore, the law that might become most used against network criminals could be the law against tampering, and not the more sensitive and appropriate laws against invasion of privacy or unauthorized copying.

IV.A. Commercial Copying

Those who illegally reproduce software can be divided into two groups: those who copy for profit, and those who do not copy for profit. Technological protection is less effective against commercial copiers than it is against noncommercial copiers because commercial copiers tend to have more resources to defeat the protection mechanism than does the average noncommercial copier. As protection mechanisms become increasingly sophisticated, more time, expertise, and special equipment will have to be devoted to the task of copying protected software. Although commercial copiers may have superior resources to aid them in copying, they are themselves "bottlenecks" — points of concentrated activity — where the law against copying can be applied more successfully.[25]

Technological protection would probably be more effective against illegal copying that occurs in the United States than it would be against copying that occurs in foreign countries that do not respect U.S. intellectual property laws.[26] Once the protection mechanism is defeated, there is nothing to stop widespread reproduction in foreign countries. In the United States, however, there may be an intellectual property right in the software — e.g., a copyright — on top of technological protection. Therefore, in the United States, there could still be a way to reduce large scale commercial copying after a protection mechanism was defeated.

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[25] Ithiel de Sola Pool, "Whither Software Copyright," draft, to be published October or November 1984, p. 4.

IV.B. Noncommercial copying

Although it is easier for commercial copiers to routinely defeat protection mechanisms because of their greater resources, few protection schemes can stand up against the determined and sophisticated opposition posed by some noncommercial copiers. Noncommercial copiers may treat a technological protection scheme as an invitation to test their wits; ". . . there are many computer whiz kids who regard the breach of any system as a challenge."[27] Once a protection mechanism is defeated, there is little to stop these "whiz kids," or "hackers," from sharing the solution for defeating the protection mechanism with friends or members of a computer club. Computer users, like people in other professions, seek their colleagues' esteem. An ingenious method for defeating a protection scheme is a prized coup.

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[26] There are many foreign countries that do not respect U.S. intellectual property rights, but the only ones that have attracted attention with regard to illegal software copying are those that are also technologically advanced, i.e., those that have a large number of computers. Entrepreneurs in Singapore and Taiwan, for example, routinely copy American software illegally and resell it. Copying of U.S. software will become a greater problem as more foreign countries become computer-literate. Bryan Wilkins. "Cbema appeals to Asian states for aid against high-tech pirates," Computerworld. July 2, 1984, p. 73.

[27] John Hurst, "The answer to program piracy: hardware protection," Computerworld, March 26, 1984, p. 83.

There is another reason why technological protection against knowledgeable users is difficult: ease of communication is inherent in the technology. Computer users communicate their findings via networks, some of which spread across the country, "electronic bulletin boards,"[28] magazines, and word-of-mouth. Furthermore, each generation of computer users can pass along to new users whatever information they have on methods to defeat technological protection. This requires that the complexity of technological protection schemes continually increase.[29]

To make matters even more difficult for those striving to protect software, there are commercial suppliers of books, manuals, software, and hardware that help defeat technological protection methods. These suppliers may send a warning along with their products. For example:

> "Important Notice: These products are provided for the purpose of enabling you to make archival copies only. Under the Copyright Law, you as the owner of a computer program are entitled to make a new copy for archival purposes only, and these products enable you to do so.
>
> These products are supplied for no other purpose and you are not permitted to utilize them for any use other than that specified."[30]

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[28] United States House of Representatives, Committee on Science and Technology, Computer and Communications Security and Privacy, Hearings Before a Subcommittee of the House Committee on Science and Technology, 98th Cong., 1st Sess., 1983, p. 15.

[29] "The never ending war between software publishers and the pirates who copy software is a lot like the arms race. Every time one side makes an advance, the other comes up with something new." Peter Callamaras, "Piracy Pruf," Incider, March 1984, p. 143.

[30] From company literature — an order form — of Central Point Software, Inc. (Portland, Oregon), a supplier of programs and a devices that aid in copying software.

> '"Before you violate the copyrights of others, remember that software supplies [sic] work very hard to provide these products. They are very deserving of the small charge they ask.' "[31]

The above warnings are representative of the shield behind which illegal copiers can hide: the need for backup copies.

Hackers are not the only group that make noncommercial copies of software; institutions may copy software for internal use. Institutions have a higher incentive to defeat copy protection mechanisms than do isolated individuals because institutions stand to save more money by making multiple copies of software that may increase their productivity and profits. Many institutions, however, probably do not have the expertise or the time to defeat complex technological protection mechanisms, unless they are technically oriented. Some inconvenience is incurred by copying since the instruction manuals for the software — often several hundred pages long — must also be reproduced.[32] Another factor decreases the need for technological protection against institutional software users: the institution's image.[33] Large companies have a vested interest in appearing honest before the public.[34] If they were caught illegally copying software, their image could be tarnished.

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[31] From company literature of Happy Computing, San Jose, CA, a company that produces equipment that helps consumers copy software. Quoted by Gosnell, p. 377.

[32] As computer technology advances, programs become more "user friendly," requiring less instruction to use, and less printed documentation. This trend favors those who copy because they will not have to do as much photocopying of documentation to go along with their copied software. (Photocopying documentation takes more time and costs more than copying computer programs.) A dramatic example of this trend is illustrated by a television commercial (August 1984) for the Apple Macintosh computer. The commercial starts by showing a personal computer that looks like the IBM PC. A voice says something to the effect that to use this computer (the IBM), you have to learn this -- and a hefty stack of three thick computer manuals crashes loudly to the floor. Then the Apple computer is shown, and the voice says that to use this computer, you only have to learn this — and a single slim manual gently floats to the floor, making little sound. The implication is that, of course, it is easier and faster to learn to use the Macintosh since you have less reading to do. It must also be evident to those that copy software that it will be easier for them to use copied Apple software since there is less
(continued)

Technological protection mechanisms might be different for institutional computer users than for individual users because the two groups use information processing systems with different technologies. Computer users within an institution are often connected by networks, while individuals, today, are less likely to be connected by networks.[35] Different network configurations, or architectures, require different protection mechanisms.[36]

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documentation to photocopy.

[33] David Saykally, president of Context Management Systems, a Torrance, CA, software publisher says "People are honest, and with all the publicity I think they will be more honest. It's too damaging not to be honest." Quoted by Michael Tyler, "Only One Per Customer," Datamation, April 15, 1984, p. 55.

[34] Corporations are also more visible than isolated individuals, so they are better targets for lawsuits against software copying by vendors. For example, Lotus Development Corporation, Cambridge, MA, filed a $10 million lawsuit against Rixon Inc., Silver Spring, MD, for allegedly making 13 illegal copies of the program Lotus 1-2-3TM and the accompanying manual. According to the unnamed employee of Rixon who tipped off Lotus, the copies were distributed to Rixon branch offices. Rixon quickly settled out of court for an undisclosed sum. Gene McMahon, "Putting a Lid on Software Piracy," Management Technology, June 1984, pp. 57-59.

"Over the long run, most software publishers believe the best answer to illegal corporate copying is to persuade companies to police their own employees. Several companies, including Chemical Bank in New York, already have strict bans on software copying, according to Frederick Bouchard, executive vice president of Multimate, which distributes word processing software. 'We have found that many large companies are following a policy of having evaluation copies, "he says. 'They say to their people, "Try it for 30 days. If you like it, buy a copy. If we find out you are using an illegal copy, you're fired." ' " McMahon, p. 59.

[35] This is changing. An increasing number of individuals are using networks such as The Source and Compuserve, and if the fast digital network becomes a reality, then all individuals will, in effect, be connected by a network.

(continued)

Educational institutions are a special case because, in many cases, they are nonprofit, and they often require multiple copies of the same piece of software. Thus their economic incentive to defeat technological protection mechanisms is high,[37] but their incentive to respect intellectual property law — and not defeat technological protection mechanisms — would appear to be higher because of the influence they have as community standard-bearers.[38]

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36. Time sharing networks have one large central computer and a number of "dumb" terminals (from two to many hundreds) that are nothing more than a video displays plus keyboards. At any one instant, there is only one copy of a piece of software in use, but since the computer can "swap" between users in a fraction of a second, and most users make changes on the computer no more often than every few seconds, it appears to each user that he has a separate copy of a program for his own use. Once a piece of software is accessible to the central computer, there is nothing to stop everyone in the timesharing system from using the software more or less simultaneously. Technological protection is difficult to implement on such systems unless it is thoroughly integrated through the entire system. Furthermore, it is arguable whether or not copyright laws are broken if several users access the same piece of software because, technically speaking, there is only one copy of the software in the system. That one copy, however, is being used more heavily than if only one user were accessing that software.

A different kind of network is the local area network (LAN), which consists of a series of "smart," personal computers (PCs) connected to one another directly or through a central "file server." LANs pose problems to software vendors similar to time sharing networks because, once a piece of software is accessible to the system — through any of the PCs or the file server —it is accessible to all computers on the network. In a LAN, however, separate copies of the software are made for each simultaneous user. Each copy is resident in the PC for the duration of use. "Says Kenneth Scott, Vice president of Microrim Inc., Bellevue, WA: 'Networked pcs especially scare the hell out of me because you can then get 25 illegal users borrowing that one copy.' "Quoted by Tyler, p. 49. Hardware-plus-software methods of technological protection can be used to protect software in LANs, and to limit the number of PCs that can be interconnected (see section VI.B.). Specially written operating system software is another form of technological protection for LANs.

37. "Software producers have largely refrained from making their products compatible with [networking] systems, claiming that their use would cut heavily into sales and thereby reduce incentive to produce software for the educational market." "ICCE Publishes Statement on Software Copyright Violations," AEDS Monitor, March/April 1984, p. 4.

38. "Teachers with limited budgets are copying programs for their schoolchildren. Youngsters grow up believing that it's okay. Something has to be done to change (continued)

IV.B. Backup copying and fair use

Some types of technological protection have no effect on the ease with which consumers can make backup copies of software. Other types make it all but impossible for ordinary consumers to make copies. Backup copying for private use by the original purchaser is currently the only type of copying that all parties to the intellectual property debate agree should be allowed.

When the software medium is prone to degradation, or the software vulnerable to accidental erasure, consumers have a need for timely access to backup copies. Software may be erased by carelessness or machine malfunction. An entire program may be rendered useless if even a small section is erased. Technological protection may prevent copying without preventing accidental erasure.

Consumers expect that software, as a new medium for intellectual property, will not be affected by use in any way. Indeed, this expectation is justified given the protean nature of software.[39] Nevertheless, if technological protection mechanisms prevent

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the trend, but it's not going to change overnight." J. Skipper, senior managing-systems consultant at SRI in Menlo, Park, CA, quoted by Kathy Chin, "Have backup-copy firms lowered the pirate flag?" InfoWorld, November 21, 1983, p. 61. Similarly, if teachers have to defeat technological protection mechanisms to copy software for their students, and the students know this, then the students may grow up learning that it is alright to defeat protection mechanisms.

[39] The clamor by consumers for backup copies of software is an example of how technology has changed patterns of use of intellectual property. Book publishers are not likely to replace a book that has been accidentally damaged, e.g., burned or torn. One could make a "backup" copy by photocopying or photographing each page. This is a tedious process, and most private individuals do not worry about "backing up" their books. Nevertheless, the first thing most people do on purchasing a new piece of software is make a backup copy (assuming the software is not protected).

consumers from having timely access to backup copies, and if the medium or the hardware leaves software vulnerable to damage, then consumers would have to be careful how they used software; this would reduce their tendency to experiment with software or try it in any application where damage could occur. Furthermore, backup copies of software are essential for some purposes, e.g., businesses that depend daily, or even hourly, on a piece of software.

There may be other legal reasons for copying software that are considered "fair use" of intellectual property. For example, the Supreme Court determined in the Betamax case that it is legal for private individuals to videotape television programs if the purpose is to shift the time of viewing the program from its original broadcast time to some other time.[40] Although currently little software (as defined in section II.A.) is broadcast in the sense of a simultaneous transmission to many people, there may come a time when digital software is regularly broadcast through cable systems or over the air. Presumably, copying for time shifting would be allowed.

V. Software Packaging

The manner in which software is packaged is closely related to the type of technological protection that may be used to protect it. Software packaging is the medium (or embodiment) plus the means of distribution — the method of conveying the software from the vendor to the consumer.

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[40] Sony Corporation of American v. Universal City Studios, Inc., 659 F. 2d 963 (9th Cir. 1981).

V.A. The effect of the medium on protectability

Some media can be more easily protected against copying than others.[41] Physical media -- those that require physical motion to access information -- such as disks and tape are vulnerable to copying because the information, the bits, are stored on the exposed surface of the medium. The location and value (one or zero) of every bit can be determined by a magnetic sensor such as a tape head or disk head. Computer programs and data are equally exposed and copyable when they reside in physical media.

Software residing in solid state media, such as read only memory (ROM) and random access memory (RAM), is more technologically protectable because the information is buried within a plastic case -- an integrated circuit chip.[42] Programs stored in solid state media are more protectable than data because programs can be run without being readable, i.e., a chip containing a computer program is like a "black box." A user can identify what data does into a chip, and what comes out, without knowing what went on inside.

V.B. The type of medium affects the need for backup software

Fragile, degradable, software media need to be backed-up because of the danger of the media failing and thus losing the software in the media. The need to have timely access to backup copies affects technological protection because some types of protection make it difficult for consumers to obtain backup software. Physical media are more susceptible to failure than solid state media because moving parts wear out while solid state parts do not.[43]

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[41] Just because the software -- the set of bits -- is reproducible does not mean that copied software is usable on other computers. Section VI.B. discusses proposed methods of technological protection that bind each piece of software to a single computer. The software can be "cloned" with ease, but the copies, no matter how many are made, can only be used on the same computer.

[42] With integrated circuit chips, it is not possible to locate and evaluate each bit without carefully removing the plastic case and examining the bare chip with expensive equipment such as an electron microscope.

Also, physical media are more vulnerable to failure in the mechanical drive mechanisms necessary to access their software.[44] Mechanical failures in the drive system are not the medium's "fault"; nevertheless, solid state media do not have drive mechanisms and thus are not susceptible to this mode of failure. New technologies, such as optical disks, may make mechanical media more reliable, thereby lessening the need for backup and making technological protection — which complicates backing up -- more acceptable to the consumer.[45] If a medium is both nonerasable and nondegradable, then there is little reason to back it up, and, therefore, little objection to technological protection mechanisms that do not allow backing up.[46]

The need to protect software may drive vendors to supplying software in media that are easier to protect. This argument is almost the converse of the previous argument. The managing director of Psion Software, David Potter, says: "If piracy and copying escalate and become endemic, hardware managers will have to take drastic measures, such as setting all software in ROM. . . ."[47]

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[43] Solid state media can be damaged by static electricity, but well designed computers and software cartridges can minimize this danger.

[44] Mechanical failures in disk drive systems can destroy all the data and programs on the disk. The loss in time and money may be enormous if the information is not backed-up.

[45] ". . . most companies making optical disk products contend information stored on optical media will far outlast information stored on conventional magnetic media. They are probably right in their predictions of optical media's 15-plus years of reliability; . . ." Tom Henkel, "Hard Talk," Computerworld, June 11, 1984, p. 121.

[46] The first generation optical disks systems will be able to write only once to disk. It will not be possible to overwrite or erase information. Once information is written, it will be safe against accidental loss (except mechanical failure). Cook, p. 92. ROM is both nonerasable and nondegradable.

V.C. The means of distribution affect the type of protection

Some methods of software distribution are more amenable to technological protection than others. Technological protection attempts to restrict the software to the medium in which it was originally purchased. It is more difficult to protect software, technologically or legally, when it is distributed without a binding medium, i.e., over transmission lines such as telephone or cable — "downloading." For many years it has been possible to send software over telephone lines. As the fast digital network becomes a reality, an increasing volume of software will be downloaded. Downloaded signals can be divided, amplified, stored, reproduced, and otherwise manipulated without the vendor's knowledge. Evidence of property right infringement is sparse when the property — a series of electrical or optical pulses — is intangible and easy to hide. In the fast digital network, the technological protection mechanism must be coordinated between the consumer's hardware and software (see section VI.B.).

VI. Characterization of protection technologies

There are basically two types of technological software protection: 1) those in which the protection mechanism is limited to the software and its medium;[48] and

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[47] Quoted in Gosnell, p. 376 (see note 55).

[48] It is not quite correct to refer to a protection mechanism that is limited to the software (and its medium) alone since software is useless and unworthy of (continued)

2) those in which the protection mechanism is coordinated between software and hardware. The essential distinction between the two is that the hardware-plus-software protection mechanisms are able to limit software to one computer or one user. The software-only protection mechanisms cannot control where or by whom the software is used, only the number of copies that exist. There are advantages and drawbacks to both types of protection.

VI.A. Features of software-only protection:

Cost. The consumer does not have to purchase any additional equipment to use the software; the protection system resides in the software alone. Although this type of protection may be initially expensive to develop, it adds little marginal cost to the software package, i.e., it costs virtually the same to protect one copy of the software in this manner as it costs to protect a million copies of the software.[49]

Portability. Any compatible computer will operate with the software. This is a feature inherent in software-only protection: the protection mechanism is not tied to one specific piece of computing machinery. In the eyes of vendors, this feature is of dubious virtue. Consumers like it because it means they can take their software with them

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protection without the hardware necessary to run it. Furthermore, software-only protection is dependent on the characteristics of the computer on which it is designed to run. Nevertheless, software-only protection does not depend upon the characteristics of a single, specific machine — only on the characteristics of a type ("make" or model) of machine.

[49] For example, Export Software International, of Glasgow, Scotland, has developed an on-disk encryption "process that costs as little as $1 a disk in large volume." "On-Disk Encryption Spots and Stops Software Pirates," Electronic Design, January 12, 1984, p. 32. One dollar per disk for protection is a small fraction of the cost of most applications software — several hundred dollars.

wherever they go -- at home, at work, or abroad -- and use it on any compatible computer. Also, they can change their equipment at will, provided the new equipment is compatible with the old equipment. Some vendors are opposed to portability because it makes software more fluid, more extendable. It increases the total amount of use one piece of software can get. Portability also makes it easier for the consumer to violate the software sales agreement. For example, the consumer could upgrade his equipment to a more powerful computer with a greater number of workstations -- thus extending the software -- without paying any additional royalty.

Copying. This type of protection severely limits the number of copies that can be made of a piece of software. This is, perhaps, the whole point of technological protection; yet it prevents consumers from making as many archival or backup copies as they need.[50]

Implementation. Software producers can protect their software as well or as poorly as they wish. They are limited only by their imagination and ingenuity. There is an open market for software-only protection schemes. The better ones will flourish; the poorer ones will disappear. This is one of the advantages of software-only protection: there are no standards or requirements for the manufacturer.[51]

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50. Softguard Systems, of Santa Clara, CA, markets a software-only protection mechanism that allows the software vendor to program the protection package to allow "users to make a limited number of backup copies. Should the original disk and backup copies be destroyed and the allowable limit of copies be reached, users can purchase an additional copy by calling the software developer or Softguard. After providing the serial number of the package and a valid credit card number, a user is given the code to unlock the system for one more copy." Matt Kramer, "Software Protection Designed for XT," PC Week, April 17, 1984, p. 56. The advantage of this system is that consumers do not have to wait for backup copies to arrive by mail.

(continued)

VI.B. Features of hardware-plus-software protection:

Cost. It would cost roughly the same to develop the software component for either type of protection mechanism. There would also be development and manufacturing costs for the hardware component. Therefore the total cost of hardware-plus-software protection would be higher. Software vendors would face similar development costs given either protection system. Old programs can be modified with little effort to include protection. Hardware vendors would have to redesign parts of their machines. The conversion process for hardware vendors would add some cost, but the final cost of their machines would not necessarily be much more than they are now without protection mechanisms.

The major expense would be borne by the consumer who would have to purchase new equipment to run protected software, and new software since old, unprotected, software would not run on the new machines. Clearly, some sort of phased transition plan would have to be worked out, but ultimately the consumer would be faced with accelerated obsolescence of old equipment.

Portability. Eliminated. The basic idea is that each piece of software is restricted -- "tied" — to a single piece of hardware.[52] This is the whole point of hardware-plus-

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51. Some software vendors would prefer not to have technological protection because of the inconvenience it inflicts on their customers. "Other vendors even go so far as to say that some piracy is good for business. 'If they copy one of our programs, that's one more potential customer to buy our next program,' says one publisher, who declined to be identified." Tyler, p. 55.

52. The hardware is almost always a computer, or group of computers, but may include (continued)

software protection. Illegal copying of software would be futile since no one's software could run on anyone else's machine. Lack of portability could hinder hardware sales. For example, "[i]f computer users have to buy three copies of every program, the effect on hardware sales will be acute: people won't buy additional hardware if each additional PC requires buying duplicate software."[53]

Copying. Reproduction of software would be as easy as it is with no protection whatsoever. There would be no reason to restrict copying because copies could not be used on anyone else's equipment. Any consumer could make and keep unlimited archival and backup copies.

This form of protection would require cooperation between manufacturers of hardware and software. The major thrust for hardware-plus-software protection would come from software manufacturers.[54] Cooperation might be difficult because the hardware and software industries have different interests. Not only is protection more expensive for hardware producers, it is probably less desirable for them since the more software there is in people's hands, the more hardware would be needed. People would be

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auxiliary devices, such as "The Block," manufactured by Software Security, Inc. of Stamford (CT). "The Block" is a coded external hardware device that plugs into the standard RS-232 port of a computer. It operates "in conjunction with a small section of code embedded in various areas of an author's software program. When the program is executed, [the] port is interrogated periodically to determine if the device is present. If present, and the correct code is returned at the time of interrogation, the program is allowed to continue insuring that the software is properly protected and being used legally." From company literature.

[53] Bunnel, p. 14.

[54] The Software Protection Fund (see note 3) "would like to require computer hardware manufacturers to encode the serial number of each personal computer in ROM memory in such a way that it is accessible by applications software." Bunnell, p. 13.

more tempted to purchase hardware if they could be assured of a large supply of inexpensive software — perhaps illegally copied.

Implementation. The key to implementation of hardware-plus-software protection is standardization. There would have to be broad agreement among producers of both hardware and software. Implementation of this type of protection would have to be virtually complete — everyone would have to own a computer with a protection mechanism -- or else there would be loopholes for illegal copiers.

VI.C. Other Protection Technologies

There are numerous other mechanisms for preventing unauthorized copying. One is to provide software in ROM, and redesign computers so they accept ROM modules or cartridges.[55] This method would be effective if the software is a program that can be executed (run) without being copyable, or if the ROM cartridges themselves contribute significantly to the cost of software.

Taking the concept of software cartridges a step further, one can imagine a computer being sold with lots of software built into the machine, residing in internal ROM chips.[56] A developer of especially useful software, fearing lost profits due to illegal copying, might choose to market his software only in this form — inside a computer. The consequences of such a policy — admittedly unlikely — would be disastrous. People would be forced to purchase an entire computer just for the sake of a useful piece of software. Even if computers were inexpensive, the waste would be great. The utility of a computer as a "universal machine," a device that can imitate any other device, would be lost. Computers would become special purpose machines.

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[55] The trend toward building computers that accept software in ROM is evident. For example, the IBM PCjr accepts software in ROM cartridges.

[56] The trend toward building software into computers is currently motivated by the desire for small, lightweight computers, not to prevent copying. For example, the Hewlett Packard Portable computer has its operating system software and two applications programs, Lotus 1-2-3™, and a text editor, provided by internal ROM to eliminate the size and weight of disk drives.

Another technological protection solution would be for developers of programs (as distinct from data) to keep their programs in their own computers, not distributing their software on the market. Consumers wishing to use the program would be required to connect to the developer's computer and pay an on-line use fee. The disadvantages of this scheme are losses in flexibility — users would not be able to link programs easily -- and communication costs for the on-line link.[57]

A more future-oriented solution would be to link access to software to a unique personal identifier. A computer terminal could have a hardware device that accepted sensory input such as a person's appearance, fingerprints, hand geometry, voiceprint, retinal pattern, and so on. The software could be designed so that no one except the person with the matching appearance or prints could log onto the computer, or use a piece of software.[58]

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[57] Pool, p. 11.

[58] John Koehring, "Automatic identity verification," information age, April 1984, pp. 103-110.

VII. Effectiveness and feasibility of technologically protecting software

How effective would technological protection be in preventing illegal copying of software? The answer depends on the type of protection. Some systems are relatively easy to defeat, others more difficult. The answer also depends on computer and software technology. It is conceivable that new forms of technology will alter the ease with which software can be copied and protected.

Another factor is the level of technological literacy in society. A generation of children is being raised with early and frequent exposure to the new computer technologies. The higher the level of society's computing skill, the more difficult the job of technological protection becomes.

A few absolutes can be stated. Any form of technological protection will prevent some illegal copying. No form of technological protection will stop all illegal copying (unless protection is coupled with a police state).

If technological protection were adopted on a large scale, the challenge would be to find a level high enough to reduce illegal copying to a manageable level, but low enough so that consumers would not find the protection mechanism so distasteful that they would refuse to purchase protected computers and software. Probably the marketplace would set the equilibrium level. Too much protection would cost too much and inconvenience consumers. This would decrease software sales and profits. Furthermore, too much protection would restrict dissemination of ideas and information, and so hamper creativity. This in turn would limit new software products and cut down on potential future software sales. In this sense, industry has to be careful not to "kill the goose that lays the golden software egg" by developing too much protection. If consumers found technological protection mechanisms annoying, they would purchase computers and software without annoying protection mechanisms. The marketplace would bring protection down to a level that consumers found satisfactory.[59]

On the other end of the protection scale, if illegal copying seriously reduces profits, and industry does not use some form of protection, the incentive to create and develop new software might erode. Software sales and profits could decline; this time it would have been the consumers that killed the goose. If the goal of industry is to maximize profits, then it would have to carefully monitor the software market and consumer reaction to protection mechanisms.

The technological feasibility of software-only and hardware-plus-software protection mechansims has been demonstrated. Several software manufacturers currently use software-only protection. Some chip manufacturers are designing computer chips with serial numbers and decryption circuits.[60] The social feasibility, or public acceptance, of technological protection is discussed in section VIII.C.

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59. Pool, p. 9.

60. For example, "Software Protection Devices, Inc. is attempting to incorporate its Copyrighter software protection system into a microcomputer chip under joint development with The Western Design Center[,]" a Mesa, AR, microprocessor design firm. Edward Warner, "Few takers for embedded protection," Computerworld, March 12, 1984, p. 109.

VIII. Implications of technological software protection

VIII.A. Economic impact

Technological software protection has a direct economic impact on four sectors of the population: 1) software producers, including creators, packagers, distributors and marketers; 2) hardware producers; 3) producers of technological protection systems; and 4) software consumers. Sectors (1), (2), and (3) cover the industrial side of software production, the "supply side."

The first sector that would be affected by protection is the one that produces the protection mechanism. The software producers and perhaps the hardware producers may also be involved in the production of protection mechanisms.[61] In section VII, some of the costs to consumers, and software and hardware producers were discussed.

VIII.A.1. Economic impact on software and hardware production

Some members of the software industry, especially those in the protection business, claim that software is being withheld from the market because of the risk of illegal copying, and that, therefore, technological protection would increase production because more useful software would be available, so more people would buy it.[62] Software producers also claim that legitimate software production is lower than it would be if illegal copying were stopped. The data on illegal copying are uncertain;[63] ". . . despite all the emotion surrounding software piracy, there remain only widespread allegations of illegal copying and little hard data. The whole issue may in fact be much ado about very little."[64] Moreover, it is unlikely that every illegal copy represents a lost sale because some of the illegal copiers probably would not purchase the software if the only way they could obtain it was purchasing it at market price.[65] Software production would not be much affected by the additional cost of the technological protection mechanism.[66]

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[61] Martel Firing, founder of Noumenon Inc., a software publisher in Alameda, CA, says, "We worry about piracy, but we don't know what the solution is, or we'd be in that business. A solution could get you a lot of money." Quoted in Tyler, p. 49.

[62] According to Heather Anderson, marketing assistant for Software Protection Devices (see note 60), "a lot of software is being held back until good software protection comes out. . . ." Warner, p. 109.

"The final possibility is that the development of software will become economically unfeasible. Software houses will not be able to stay in business (continued)

VIII.A.2. Economic impact on consumers

The economic impact of technological protection on consumers is uncertain because two effects have to be considered. First, people would not be able to obtain free copies of software, so those accustomed to copying their software would have to pay more (than nothing) to get software. Second, if software were protected, and this forced more people to buy software legally since there was no other way to get it, the price

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because the financial losses incurred from pirating will become so great that all profit margins will disappear." Carol Cooper, "The real cost of software piracy," information age, April 1984, p. 101.

[63] Typical figures quoted in the literature are that between two and ten illegal copies are in use for every legally purchased copy. The literature also reported that dollar losses to the industry were on the order of one to two billion dollars in 1983. McMahon, p. 57.

[64] Tyler, p. 55.

[65] According to one study, the price of software does not affect people's tendency to copy. Cited in Hayman, pp. 132, 134.

[66] Technological protection would increase the cost of software, but not much compared to the cost of most creation, packaging, distribution, and marketing (see note 49).

might decrease as volume went up.[67] Thus, consumers who purchase software legally would benefit by technological protection and pay less, while illegal copiers would pay more.[68] It is difficult to discuss the economic effect of protection on consumers without discussing the impact of protection on the dissemination of software to the public. The next section, therefore, is closely linked to this section.

VIII.B. Impact of protection on dissemination of software

How would technological protection change patterns and levels of software use?[69] This, of course, depends upon the the nature of the protection mechanism, but a few general statements can be made. The hackers, and other people that once copied software, would probably have smaller private collections of software.[70] Instead of borrowing an original piece of software (or, indeed, an nth generation copy), copying it, keeping the copy, and returning the original to a friend or acquaintance, people would be forced to 1) share a single copy, i.e., use it on different machines, if technological protection allowed; or 2) use software together — collaborate. This is analogous to a group of people getting together, for social purposes, to listen to a record or watch a movie on video tape.[71] One economic impact of technological protection could well have a social impact: increased sharing of software. The amount of experimentation that was once facilitated by easy access to cheap copies would decrease. People would have to become accustomed to choosing one program to do a specific function, purchasing it, and learning to live with it. This would emphasize the importance of local dealers who could explain what software packages do and demonstrate them.

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[67] The logic of this argument can be seen by looking at the converse: the price of software is higher without technological protection because fewer people buy it legally, so the producers have to charge more to recoup their development costs (see note 18).

[68] What would happen to those consumers that both purchase and copy software?

[69] I avoid the broader question of what the impact of a technological protection-driven decrease or increase in the use of software — and all the associated benefits of software such as information, productivity, entertainment, and so forth — would have on the economy. This question is beyond the scope of this paper.

[70] If technological protection systems are only moderately difficult to defeat, as most software-only mechanisms currently are, then software copying would favor knowledgeable computer users because they could defeat the mechanisms, whereas the average user could not.

Institutions with many computer users would be encouraged to purchase special multi-use licenses as a way to lower the cost per copy of software. Licensing terms would have a major impact on educational software users because they often have low budgets and many simultaneous users. If multi-use licensing proves too expensive, use patterns would have to change. Staggered use might replace simultaneous use.

An important impact of technological protection on software use could be software redundancy. Since technological protection bypasses intellectual property law, software producers might decide not to disclose the contents of their software, depriving competitors, experimenters, and researchers of the benefits of their work. Thus, some software research and development would be redundant with previous, but undisclosed, work. This duplication and waste of resources is precisely what patent law strives to avoid.[72] Moreover, technological protection of software does not expire after a set period of time, as other intellectual property rights do.[73] The creator of software could, in effect, have a perpetual monopoly on his work.[74]

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[71] Another possibility, less likely, is that people would share computers. This could come about if the size and cost of hardware fell drastically and software was tied to one specific machine.

VIII.C. Public acceptance of technological software protection

What would the public think of technological protection and why does it matter? The answer to this question depends upon the nature of information processing systems. If the current environment of moderate computer use continues, then widespread acceptance of technological protection would probably depend upon its success in the marketplace. If the protection mechanism is such that it alienates or otherwise arouses the public, then it is likely that the public would turn to competitors that offer information processing systems with more palatable protection mechanisms, or none at all.[75]

Should computer use accelerate rapidly and become indispensable to most occupations and forms of entertainment, then software producers or the government might require that computers have protection mechanisms built in.[76] The public's attitude toward technological protection would be significant because it could influence the level and type of use they make of information processing systems. The public could become alienated against systems that required large amounts of personal information -- thus proving one's identity -- or that required a complicated or time consuming process before allowing access to the system or a specific piece of intellectual property in software. Such a system might be so disliked that people would shy away from using it for entertainment or other nonessential purposes. The evolution and growth of the system could be stifled by those means -- technological protection -- incorporated to provide access to intellectual property. (This statement is made on the assumption that some forms of intellectual property might not be made available to information processing systems without assured protection against copying.) This is not to say that people would be alienated against systems that do not allow them to copy software illegally; simply that people may be alienated against systems that require excessive or intrusive information to gain access.

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[72] Patent law requires elaborate disclosure of a device or process, including detailed diagrams if necessary, so that anyone can understand how the invention operates and what it does. This facilitates future research that builds on patented works.

[73] Patents expire 17 years after the filing date (35 U.S.C. sec. 154), and copyrights registered on or after January 1, 1978 expire fifty years after the creator's death, or seventy-five years after publication if it is a work made for hire (17 U.S.C. 302).

[74] A technological protection mechanism that was only moderately difficult to defeat would, to an extent, satisfy the compromise between protection and dissemination. The protection mechanism could give the software vendor a modest headstart on the competition and illegal copiers, say, one to three years. Then, after a "critical mass" of copying had been done, the software would be, de facto, in the public domain.

[75] Pool, p. 9.

Two public reactions to excessive technological protection are plausible: development of a "lock and key" mentality, and a desire to "beat the system." If people were billed or monitored for every bit of information they received through information processing systems, or if they were required to go through a special "unlocking" process every time they used a computer system, then people might feel as though they were in a literally "closed society," i.e., as though no information were freely accessible.[77] The other response, a desire to beat the system, is a standard reaction to new ways of preventing or protecting something.[78] This is not always caused by economics; people do not only respond to new restrictions on the basis of their wallets. They also respond from a sense of outrage or challenge.

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[76] If software or hardware producers joined together to implement technological protection mechanisms in computers, there could be a violation of antitrust law.

[77] Such an environment is difficult to picture in the United States where there are so many different ways of receiving information and intellectual property for (continued)

IX. Legislation

IX.A. Types of legislation that could be used to augment/implement technological protection

IX.A.1. Standards

Technological protection has an uneasy relationship with standards. On one hand, a certain level of standardization within the computer industry is necessary for most forms of technological protection to operate. On the other hand, the more standardized information processing systems become, the easier it would be to distribute intellectual property (lawfully or not), and the harder it would become to keep track of and restrict dissemination of intellectual property.

There are two types of standards to consider: voluntary industry standards and mandatory government standards. If information processing systems are manufactured by private industry, and data are transmitted over private networks or transmission lines,

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practically no cost — radio, television, public libraries, browsing at a bookshop or newsstand, conversation, and so forth. Nevertheless, if more and more types of intellectual property come to be mediated through information processing systems, that diversity may diminish.

[78] For example, when the police started using radar to catch people exceeding the speed limit, some people started using radar detectors to foil the police.

then industry might agree on voluntary standards for technological protection. Voluntary standards are a convenience as well as a protection. They are convenient for consumers, who can, for example, buy a new computer and still use their old disks. They are convenient for industry as well, since they do not have to "reinvent the wheel" every time they put out a slightly different product. Standards protect industry from damaging competition posed by new and perhaps better products with differing and incompatible specifications.[79]

If, however, information processing became the province of heavy government regulation, then technological protection, if incorporated into the system, would operate under government mandated standards. The standards would then be law, probably enacted by Congress rather than by State or local governments because information processing networks would most likely cross State lines freely. It would make little sense for each State to have a different set of technological protection standards, just as it would make little sense for each State to have different household voltages or radio frequencies. If data are transmitted over public "information utilities," then it is likely that law, rather than voluntary agreement, would set the technical standards for protection mechanisms.

IX.A.2. Control of Copying Methods

One type of legislation that can assist technological protection is laws that proscribe the manufacture, sale, distribution, or use of devices or instructions that help defeat technological protection mechanisms. There are two drawbacks to this type of legislation. The first is that, whereas it is illegal to copy software and distribute it to other people or sell it, it is not illegal to copy software for one's own, private use, e.g., for backup. Therefore, it would be necessary to outlaw devices with legitimate uses. The second drawback, closely related to the first, is that it would be necessary to somehow define and characterize devices and methods used for defeating technological protection. Those definitions and characterizations would cover specific applications of technology, and would themselves exist in a changing technological context. Would the law be able to make the precise technological definitions necessary to prevent defeat of protection mechanisms, but still allow the use of related technologies?

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[79] There is a danger here of violating antitrust law.

Another kind of legislation, similar to control of copying methods, could be enacted that would outlaw the intentional defeat of, or tampering with, technological protection mechanisms, regardless of any violation of intellectual property rights (see note 24). Or, perhaps, ordinary violations of intellectual property law could be treated as they are now, but violations that involved the intentional defeat of technological protection mechanisms could carry additional penalties.

IX.B. The impact of technological protection on intellectual property laws

It can be argued that the intention and result of technological protection of software is to sidestep, or minimize the need for, intellectual property rights law. Indeed, some software producers prefer to protect their software by technological means rather than by legal means because they do not want to be put in the embarrassing and damaging position of having to take legal action against their own customers.[80]

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[80] Miles Gilburne, an attorney with a law firm in Los Angeles that has many computer-industry clients, says that "technical measures would be preferable to an (continued)

Technological protection in and of itself does not necessitate changes in intellectual property law, but it could precipitate changes by weakening the distinctions between different types of intellectual property — patents, trade secrets, trademarks, and copyrights. If technological protection were effective, intellectual creators would not have to observe the formalities required for legal protection, e.g., submitting to the lengthy and expensive patent process, or disclosing works to the Copyright Office. They might still choose to do so for additional protection if technological protection fails, but there would be less reason. Technological protection, if applied indiscriminately to any or all kinds of intellectual property, could blur the legal distinctions. The law itself, in reflecting what might become a widely accepted public practice, could begin to lose the distinction.[81]

Widespread technological protection could make intellectual property law more effective in one important way: it would alert consumers that attempt to copy that they are breaking the law. This would not necessarily stop consumers from breaking the law, but by forcing them to take elaborate steps to make copies, at least the illegality of their act would be emphasized.

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embarrassing lawsuit.

"The bottom line is that legal protection is very expensive, and uncertain at best. . . . To the extent it is feasible, technical methods [of software protection] that work correspondingly diminish the need for legal protection." Quoted by William P. Martorelli, "Crackdown Coming On Corporate Software Copiers," Information Systems New, November 14, 1983, p. 24.

[81] John Hersey, in the final report (1978) of the National Commission on New Technological Uses of Copyrighted Works (CONTU), worries about the "subtle dehumanizing danger" of blurring the distinction between types of intellectual property. He opposes extending copyright to computer programs at "the moment at which the program ceases to communicate with human beings and is made capable of communicating with machines." CONTU, p. 33.

X. Trends

X.A. The impact of changes in software technology and use on technological protection

Most forecasters of technological change predict increasing use of computer software in the future. More and more intellectual property that previously existed in books, films, journals, newspapers, and so forth, will exist in software form. The value of intellectual property will probably increase vis-a-vis physical property. Paralleling the increase in the value of intellectual property will be the intellectual creators' increased desire for compensation. Technological protection is one way to help satisfy that increased desire.

One change that would have a profound influence on the value and use of intellectual property, and hence the need for technological protection, would be the worldwide (or domestic) fast digital network.[82] People would be able to send files -- computer programs and data -- as easily as they can now dial a (pushbutton) telephone. Assuming this network were to operate with as much freedom as the current telephone system, it would be difficult to control or restrict transmissions of intellectual property in software without some form of technological protection. Once a piece of intellectual property was entered into the network, it could be distributed at will and with great ease.

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[82] Another technological development that would have a major impact on software use would be a fall in the price of computer memory (see note 16). This is a development that will probably soon come to fruition with optical disks. Everyone would want, and be able to have, a private library of software. Without some form of technological protection, there would be little to stop groups of friends or acquaintances from exchanging copied software. Of course, someone in each circle of acquaintance would have to purchase a legitimate copy of each piece of software.

It would be easy to sell software directly over the network -- teledistribution. Billing could be accomplished in a number of ways, e.g., by providing a vendor with a bank or credit card number, much like mail order transactions over the telephone with credit numbers. Alternately, a vendor might be given each customer's network number (equivalent to telephone number) automatically for billing. Transactions between vendors and consumers could be controlled technologically, but what would stop a consumer from reselling or giving software to a third party? It would be trivial for friends and acquaintances to swap or sell software to one another, far easier than it is today with floppy disks. Copying and exchanging software could become epidemic. Illegal copying for profit would become more difficult to prevent and detect.

X.B. Protection Technology

Some trends, or new forms, of technological protection were discussed in section VI.C. Software-only protection mechanisms are becoming every more sophisticated.[83] The hardware-plus-software techniques described in section VI.B. would require only a combination of existing technologies, no breakthroughs. Advances in cryptography would assist virtually all methods of technological protection.[84]

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[83] See note 29.

[84] Cryptography, however, is a "cat and mouse game." There is no way to guarantee that a new code will not be broken. "Encryption: Can Spies and Thieves Break It?" Technology Review, Nov./Dec. 1982, pp. 72-73.

Technological protection is fundamentally limited by the need for human sensory input. There is no way to prevent an image on a video display terminal or the sound emanating from a loudspeaker from being recorded or copied unless hardware and software are produced under rigid and unanimous standards.[85]

This leads to the second area of potential advancement in technological protection that is applicable to future information processing environments: monitoring. It is possible to monitor the distribution and use of software -- legal and illegal -- rather than prevent illegal use or copying. For example, all computers could be hooked into a network that allowed the government to monitor, selectively or comprehensively, exactly what each computer was doing. This would be similar to a telephone system, which can be tapped at will. The government cannot, a priori, prevent people from saying or doing anything they wish over the telephone, but they can tap the lines and obtain evidence for a conviction. It is possible to conceive of a computer network, as integrated as the telephone system, that the government could monitor in order to detect when illegal copies of software were being made. The government, under such a scenario, might not be able stop illegal copies from being made, but they could obtain, by technological means, prima facia evidence for a conviction. One could also picture a far more intrusive regime that actually had the power to control network conversations or transactions in "real time," i.e., as they were taking place.

One can imagine a neutral monitoring system designed only to protect intellectual property. Upon electronic "publication," all works of intellectual property to be distributed via the digital network would be encoded in software with a serial number.

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[85] Wilding (see note 19) says, "There is no way to protect the electronic pulse. Record companies have tried and failed." Quoted by Gosnell, p. 377.

The serial number would be registered with a central authority — probably governmental — that could use a computer to continually monitor all digital transmission lines automatically. Whenever the transmission of an encoded piece of software was detected, the central authority could automatically bill the recipient for the full value of the software and transfer the fee to the owner of the serial number. This sort of technological solution is vulnerable to technological ways of defeating it. For example, clever people might be able to strip away the serial number and retransmit the software without detection. Or they might re-encrypt the information to foil the monitoring system.

A monitoring system suggests another technological solution to the problem of providing compensation to creators of intellectual works: a royalty system. It must be emphasized that compensation is not necessarily synonymous with prevention of copying. One example of compensating without preventing copying is to levy a royalty fee on media and equipment that are commonly used for reproduction (copying) of copyrighted works.[86] This method of compensation could be extended to the current generation of computers by imposing a royalty on terminals and disks (or ROM). This method could also be extended to networks by imposing a small royalty for every bit of information received.[87]

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[86] U.S. Senate bill S.31 (98th Congress), with reference to home audio and video taping, proposes that ". . . to ensure that the public continues to enjoy uninterrupted access to this copyrighted material, a compulsory license will be established for importers and manufacturers of recording devices and media who commercially benefit from such infringement; . . ."

[87] This would be more akin to an "information tax" or a charge on transmission than a royalty on intellectual property. This system of compensation could be carried out electronically and automatically, but it would not be able to distinguish between (continued)

The danger of having a technological protection system monitoring the flow of intellectual property is not that it might not work — indeed, if standards were strictly enforced and equipment regularly inspected, the system might work well — but that it would place an apparatus with great power in the hands of a central authority. It would only take a little reprogramming for the apparatus to lose its neutrality and be used for unconstitutional purposes. George Orwell featured a system of ever-present intrusive visual monitoring in his book 1984. It would be ironic indeed if a system designed to protect intellectual property — diversity of ideas — was co-opted to protect instead the central authority.

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intellectual property and any other type of information such as conversation (unless an advanced program using artificial intelligence were developed that could make this distinction).
(continued)

STATEMENT OF WORK

DESCRIPTION OF TASKS

As part of its study, "Intellectual Property in an Age of Electronics and Information," OTA will have to identify and characterize communications and information technologies that have, or that are likely in the future to have, implications for intellectual property rights. To assist OTA in this effort, the contractor shall prepare a 30 to 40 page paper that:

1. Identifies and characterizes those technologies and technological applications that are likely to have significant impacts in the area of intellectual property, including but not limited to technologies for:

    the creation of intellectual property (e.g., electronic cameras, computer-aided design systems, artificial intelligence);

    the distribution of information (e.g., packet-switched networks, direct broadcase satellites);

    the reproduction of information (e.g., Xerography, software downloading);

    and the embodiment of information (e.g., semiconductor masks, databases);

2. Provides a rationale and a set of criteria for including or excluding technologies among those that are considered likely to have significant implications for intellectual property. This discussion will include the identification of the common characteristics of these technologies that relate them to intellectual property;

3. Identifies and discusses the characteristics that differentiate these technologies, one from another, in their impact on intellectual property, and describes the ways in which the differing economies and markets of these technologies are likely to affect their impact on intellectual property.

4. On the basis of the above analysis, the contractor shall suggest a taxonomy for information technologies which reflects their implications for intellectual property.

5. In addition, the contractor shall provide OTA with a bibliography of sources used in the analysis and preparation of the paper and taxonomy, and a list of questions and further directions to pursue that emerged in the course of performing this contract but that were beyond its scope.

DELIVERABLES;

		Due Date
1.	Outline of the paper	July 13, 1984
2.	First Draft reflecting the Contractor's outline and comments/adjustments of OTA staff	August 1, 1984
3.	Final version of paper and list of questions and further directions	August 24, 1984

PUBLIC PERCEPTIONS OF THE "INTELLECTUAL PROPERTY RIGHTS" ISSUE

Final Report

Prepared for

The Office of Technology Assessment
United States Congress

February, 1985

This contractor document was prepared by an outside contractor as an input to an ongoing OTA assessment. It does not necessarily reflect the analytical findings of OTA, the Advisory Panel, or the Technology Assessment Board.

Prepared by

The Policy Planning Group
Yankelovich, Skelly and White, Inc.

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INTRODUCTION

Background and Purpose

INTRODUCTION

Background and Purpose

The information society has come of age. Technological innovations have led to an ever-expanding availability of new information technologies for the home and for business. Consumers of these technologies are demanding and receiving instant access to more and different kinds of information and information services.

Nowhere is the technological explosion more evident than in the area of home technologies. For example, it has been estimated that video cassette recorders (VCR's) are already in 20% of American households. Projections are that by the end of 1985, 30% of American households will own a VCR and that this percentage will rise to one-half of all households by the end of the decade. The trends appear to be similar for home computers.

The changing dimensions of technology ownership have led to equally dramatic changes in the nature and patterns of information use. Americans no longer have to leave their living rooms to enjoy their choice of movies, concerts, or sports events, to monitor financial matters or to gain access to countless commercially developed and maintained data bases. They can do all this with ease, privacy and anonymity.

However, there is another reality--that legitimately acquired data and entertainment also can be obtained covertly with push-button ease, without harm to the original, and without risk of detection. This other reality has raised a host of new issues and ethical dilemmas which confront creators, distributors, regulators and users of intellectual and creative property and, taken together, have come to be referred to as the "intellectual property rights" issue.

At present, the subject of intellectual property rights is an issue under discussion by government and private industry--particularly those in information services and electronic technologies. At the same time, intellectual property rights is an issue that has implications for the general public both in terms of the restrictions that may be placed on their actions and in terms of the limitations that public support, or lack of support, might place on attempts to find solutions to the problem. Until this research, little could be said about public attitudes and behaviors concerning intellectual property rights.

The purpose of this study, conducted for the Office of Technology Assessment (OTA) of the United States Congress by Yankelovich, Skelly and White, Inc. is to provide an initial assessment of the general public's perceptions of the intellectual property rights issue. It describes the views people hold on the ownership of intellectual and creative property; it explores attitudes about a range of specific behaviors that, by some definitions, infringe on intellectual property rights; and it examines how various factors are perceived to affect the appropriateness or inappropriateness of these behaviors.

The study also explores whether such factors as:

...The public's familiarity with the intellectual property rights issue

...Access to and experience with home technologies, and

...Ethical values as exhibited in the marketplace

have an impact on people's attitudes and behaviors with respect to intellectual property. In addition, the study includes a first cut at discussing the public's reactions to possible strategies for protecting intellectual property.

This study is one piece of a considerably larger investigation of intellectual property rights issues being carried out by OTA. The work of YSW contributes three important aspects, in that it provides:

1. Insight into the interests of the general public as one among a number of stakeholder groups;
2. A perspective on attitudes which underlie consumer behaviors which may be at odds with the interests of producers of intellectual property; and
3. Information about a set of attitudes which could clearly affect the efficacy of possible solutions to the intellectual property rights problem.

Methodology

Methodology

This study is based on a national survey of the general public on the subject of intellectual property rights.

There are four principal elements of the study methodology: the questionnaire, the sample, the fieldwork, and the analysis.

Questionnaire Development and Administration

The questionnaire was prepared based on a reading of relevant literature, discussions and direction given by the Office of Technology Assessment project staff and two focused groups conducted by YSW staff. The focused group is a research tool which brings together a group of people to discuss a set of questions or issues. The two groups, each of which was conducted by a project researcher and lasted approximately two hours, covered many related aspects of the issue. The group discussions, following a predetermined outline, began with notions of the proprietary nature of information and the impact of technology on information. Behaviors illustrating aspects of the intellectual property rights issues were explored along with possible solutions which might curtail these behaviors. One group represented a cross section of the public, while the other included only individuals who owned either a VCR or a home computer. The focused groups, for this study, provided a forum to test concepts, approaches and the appropriate vernacular to use in the subsequent survey.

The survey instrument for the study is a completely structured questionnaire which required an average of 20 minutes to administer. The final version of the questionnaire was pretested to assure that questions were clear and properly understood.

Sample Design and Selection Procedures

The study is based on 800 telephone interviews with males and females living in the Continental United States. The sample selection plan for the project was designed to yield a representative and projectable national sample of individuals 18 years of age and older.

Extensive geographic stratification and the use of a random sampling technique helped to ensure that the final sample would be properly distributed across all segments of the population being surveyed. Specifically, the following procedures were carried out:

1. Random digit dialings to include homes with unlisted phones, along with homes having listed phones.

2. Sample stratification and control by United States Census region and by metropolitan versus nonmetropolitan segments of the population within those regions.

3. Application of a comprehensive sample balancing program to align the sample with the total United States population on such key demographic and socioeconomic characteristics as age, sex, education, income, geographic region, etc. The weighting procedures make the use of raw numbers in the supporting tables difficult to interpret so they have not been included.

Fieldwork

Interviews were conducted by trained interviewers operating from a centralized WATS telephone facility. The interviews were carried out under constant quality control supervision. Results of all dialings were recorded on detailed sample control forms so that proper adherence to predesignated sampling procedures could be verified.

Interviewing hours were limited to late afternoons and evenings or weekends to ensure proper inclusion of working individuals in the sample. Fieldwork was completed between December 5 and 10, 1984.

Analysis

Completed questionnaires were entered onto computer tape and analyzed by the Yankelovich, Skelly and White, Inc. study team. The approach is quantitative; numbers reflect descriptive differences between groups as well as act as indicators of emerging attitudes.

One caution is in order. "Intellectual property rights" is not a commonly used terminology. The focused group discussions conducted early in this study made clear that the concept in the abstract is not understood by most people. Further, as this study shows, it is not a high salience issue among the public even when they understand the terminology. Consequently, the approach taken in the survey was to begin by obtaining reactions to a number of specific and familiar behaviors. Only after respondents had been given this base of specific examples was the concept of intellectual property rights introduced and labeled--at which time respondents were asked how familiar they were with the issue. Subsequent questions regarding concerns and possible protective practices were posed with reminders of what the concept means. The specific explanation was the following:

> "A number of the actions we were talking about earlier, like copying, are now being discussed in Congress and in the courts. The issue, sometimes referred to as intellectual property rights, concerns the rights individuals and businesses have to protect their intellectual or creative efforts so that they can control or sell them as they see fit."

OVERVIEW

OVERVIEW

This Overview describes the results of a national survey which explores the public's perceptions of a complex set of concerns commonly referred to as the intellectual property rights issue. The Overview is presented in three sections: First, current trends in social values and attitudes are described that provide insight into people's thinking, in general, about technology and the uses of information. Second, the major findings of this study are summarized. And finally, drawing from both the social trends and the particular findings of this study, some implications are suggested for consideration in the development of public policies that address intellectual property rights and their protection.

The Social Climate Context

With the rapid changes in both information technology and the way in which information is being used and shared in society and the marketplace, the ownership and control of intellectual property is emerging as an issue for government and business. Not so for the public, whose views have yet to coalesce on this issue.

Particularly with such a complex and esoteric issue, it is useful to understand the values, attitudes and life-styles which influence people's thinking, generally, at a given time. These more general social values can color public thinking on a specific issue.

YSW has been gathering data on the social environment for over fifteen years. These investigations have identified major trends in public values, attitudes and life-styles from which future attitudes and behaviors with regard to specific issues can be projected.

Three of the major trends taking shape in the mid-1980's provide some direction for this study:

...In the past two years, a significant shift in values has occurred with the emergence of the more pragmatic individual, one who is willing to adapt to the new social and economic realities of the 1980's. When looking at attitudes toward technology in particular, we see this larger theme manifested in several ways. First, there is an increasing acceptance of the view that technologies are important to a simpler, easier life and must be adapted to despite any feelings of strangeness or discomfort caused by inexperience with them. Secondly, technological innovation itself is viewed as positive, creating an attitudinal predisposition that more is better. Finally, the public is showing increasing willingness to accommodate to technology as a way of dealing with the future.

...Along with this willingness to adapt to the new environment, there is also the desire to be strategic. There is an emphasis on having the availability of options and

> having the ability to exercise control. In practical terms, there is a desire for information which allows choice, flexibility, and self-reliance.
>
> Technologies have a strong appeal by providing a tool to attain greater control over one's time and efforts which allows greater self-reliance. In the public's view, technologies, like home computers, foster the ability to be strategic, allowing one to use information and to make choices in a more effective way.
>
> ...In the new competitive environment, there is also a marked increase in emphasis on "winning"--in one's work life and personal life as well. This includes turning the economics of the marketplace to one's own advantage and doing what is necessary to be successful. There is also a "beat the system" component, using one's wits to find the best advantage. Technologies provide power in a very competitive environment where upward mobility can no longer be assumed. Technologies also provide individuals with the ability to "even the score" somewhat with business and government who, some perceive, are already using technologies effectively.

These themes, coupled with other YSW research which documents that experience with one home technology spurs use of other technologies, suggest that technology use will find greater acceptance in the future. At the same time, there is a growing sensitivity on the part of the public to potential problems posed by technology. The public is not unmindful that there can be negative consequences as a result of society's use of technology, including such downsides as job displacement, threats to privacy and the often escalating costs that are associated with it.

Major Study Findings

This study of public perceptions of the "intellectual property rights" issue yields the following major findings:

1. At the present time, "intellectual property rights" is not an issue that most members of the public feel they know a great deal about. It is also not an issue they perceive affects them.

2. The vast majority of the public finds acceptable--such that they would be willing to do it--some form of unauthorized copying of copyrighted material.

3. Interestingly, willingness on the part of the public to engage in behaviors which infringe on intellectual property rights is basically not affected by awareness of the issue or experience, in general, with home technologies.

4. The public draws the line on behaviors that infringe on intellectual property rights when they involve the obvious or active circumvention of payment, or when they are done for specific commercial purposes such as sale or profit, or on the behalf of a business or in a corporate setting.

5. Several specific attitude sets appear to be related to greater acceptance of copying behaviors. Among them are:

   - A tolerance for possible "gray area of the law" behaviors, such as cutting corners on tax returns or insurance claim padding,

   - Relatively stronger beliefs in the benefits of sharing information,

   - Pragmatic rationalizations to conflicting attitudes such as the acceptance of copying copyrighted material while acknowledging that it is probably wrong.

6. At the moment, the public perceives the intellectual property rights issue to be a marketplace problem whose solution should come from the industries and companies affected. This view reflects a pervasive sentiment of

wanting less government, in general, a sense of low personal involvement in the issue, as well as considerable uncertainty about just whose interests are at stake.

Implications

Based on this study a number of implications regarding public views about the intellectual property rights issue can be drawn.

1. Because this is a low salience issue, any public hue and cry for further protection of intellectual property is unlikely in the short term. On the other hand (and this may be good news for some), it is unlikely that there would be much public reaction to any of a number of remedies aimed at protecting intellectual property.

2. Rapid technological advances have complicated an issue already viewed as somewhat esoteric by the public. Information as property is still a very amorphous concept for most people; the fact that home technologies make information more readily available and easier to manipulate clouds the issue even further.

3. Though most people understand some of the specific actions involving use and misuse of intellectual property, the public attaches no great importance to the issue of protecting such property. They have little

sense of whose interests are at stake. While at the same time, they value the benefits of information and technology for themselves. Under such a set of circumstances there would be little popular support for legislation which would restrict their options on personal use of copyrighted materials.

4. Consequently, legal or legislative remedies, aimed at modifying behaviors that, by definition, are not public, are likely to be hard to enforce. In fact, the public is more likely to be concerned about the inappropriateness of a governmental remedy to the issue than with the problem itself, especially in an era in which the public prefers less government. Public concern about, for example, privacy--one of the possible reactions to a governmental initiative in this area--is stronger than any concern about property rights. Only when it comes to certain uses of copied information--i.e., commercialization--does public support coalesce around the view that protections are needed.

5. The public's views about this issue from a consumer perspective substantially outweight any policy concerns. This is a pocketbook issue. There is little sense of any immediate need for policy actions even though there is recognition on the part of most people that there

could be a variety of negative consequences from a laissez-faire policy approach.

6. With regard to the policy issues, it would be a mistake to assert that the public has strong views about the policy consequences of nonaction in this area. It would be more accurate to characterize the public as generally receptive to, though uninformed about, arguments regarding the importance of such consequences--which range from international competitiveness to the health of small business. It is notable that the public is least receptive to the argument that failure to further protect intellectual property rights would stifle creative effort.

Given this last point in particular, it is important to highlight the question areas that should be addressed in future research. Such questions essentially revolve around two sets of issues: weighing the trade-offs involved, and reacting to more detailed articulations of potential protective measures and their consequences. While this survey's emphasis was on the evaluation of a number of specific actions, there was little opportunity to explore the reasons for people's views in detail. Other productive and important directions for further research might include presenting positions pro and con on the intellectual property rights issue and asking the public to respond to the arguments. Another approach would be to present scenarios of the likely consequences of imposing intellectual property protections and then to explore with the public their likely behavioral and attitudinal reactions.

DETAILED FINDINGS

CHAPTER I

PUBLIC VIEWS ON INTELLECTUAL PROPERTY RIGHTS AS AN ISSUE

DETAILED FINDINGS

CHAPTER I

PUBLIC VIEWS ON INTELLECTUAL PROPERTY RIGHTS AS AN ISSUE

The general public's views on the subject of "intellectual property rights"--in order to be accurately described--must be placed in a broader context. This chapter reviews:

...The public's views on the ownership of information in society.

...The level of awareness of the intellectual property rights issue.

...The extent to which the public defines the issue as one that is important to them personally.

In sum, the intellectual property rights issue appears to be one that, at the moment, the public is neither particularly aware of nor feels personally concerned about. Further, their views on the nature and place of information in our society lack consensus or intensity. These results provide an important perspective for the findings presented in subsequent chapters.

The first question to answer regarding intellectual property is whether the public acknowledges that such ownership exists. In a preliminary test of this belief, this survey asked about the ownership of information.

Attitudes About Ownership of Information

A majority of the public (65%) agrees with the idea that information is a product that can be bought and sold like other products. In addition, technology familiarity influences this view. Acceptance of the concept of ownership of information is more prevalent among persons who are technological consumers (80% of those owning a VCR or home computer agree (see Table I-9). A greater acknowledgement of the information as a product concept is also found among people who say they are familiar with the intellectual property rights issue.

(Table I-2)

While a majority of the public accepts the idea of information as a commodity, at the same time, they are not very sympathetic to proprietary claims on information. Thus, in this way, information is differentiated from more tangible goods. Specifically, 6 in 10 agree that if information has been paid for once, then anybody should be able to use it. The public, therefore, is comfortable with the notion that information should be shared, that it should be available to those who want to use it.

The discussion of the ownership of information is an abstract one for most people. Opinions do not vary according to whether or not people believe they are or will be personally affected by the intellectual property rights issue now or in the future.

(Tables I-1 to I-3)

Familiarity With the Intellectual Property Rights Issue

There is little awareness among the general public of the issue of protecting the propriety of intellectual or creative efforts. After discussion of the intellectual property rights issue both in terms of specific behavioral examples and a more general definition, over two-thirds of the public say they are either not at all or only slightly familiar with the subject. However, there are some interesting differences among parts of the population that suggest a potential trend toward greater awareness in the future:

...Those under 40 years of age are more familiar with the subject of intellectual property rights, while those over 54 years are most likely to say they are not at all familiar with the issue.

...A significantly greater awareness of these issues exists among those who own home technologies (44% say they are very or moderately familiar with the issue whereas only 23% of all others have a similar level of awareness).

...While also related to ownership of home technologies, there is greater familiarity with the issue among those with annual household income of over $35,000.

(Tables I-4 to I-6)

Salience of the Intellectual Property Rights Issue

Most of the public reports that the intellectual property rights issue is not something that affects them.[1] Over 2 out of 3 among the public say that the issue does not affect them personally.

There are two important exceptions:

...Among owners of home technologies (a VCR or a home computer), 45% say that the issue affects them either a little or a great deal.

...Among those familiar with the issue (not unrelated to ownership of home technologies), over 1 in 2 say they are affected by the issue.

(Tables I-7 and I-8)

These two findings taken together suggest that, as home technology ownership grows, both familiarity with the issue and the feeling that one is affected by it, at least to some extent, will grow.

In fact, the public's expressed perceptions confirm this. Specifically, almost two-thirds believe that the right to protect or control intellectual or creative efforts is an issue which will affect them in the future. This is further underscored by the fact that people:

---

[1] This question was posed after a discussion of specific behaviors and after the concept was explained--hence it reflects a relatively thoughtful self-assessment.

- Under 40 years,
- Owners of home technologies,
- Familiar with the issue

are more likely to believe that they will be affected personally by the issue in the future.

(Tables I-9 to I-11)

TABLE I-1

ATTITUDES ABOUT OWNERSHIP OF INFORMATION AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
Strongly/Somewhat Agree			
Information organized in a particular way is a product that can be sold just like any other product	65	80	59
If information has been paid for once, from then on anybody should be able to use it	58	58	58
A person creates something new if they take an old idea but they present it differently	53	54	52
If you rent a home movie, you can do anything you want with it--play it for whomever you like, make copies--as long as you don't destroy it	48	48	47
Taping a friend's record is like stealing a record	48	45	49
If you make changes to some creative work, like a song or a recipe, you have a right to claim that the product is yours	43	36	46

Question 1: I would like to begin by reading you a few statements people have made about the role of information in our society and how it is used and controlled. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each one.

TABLE I-2

PERCEIVED FAMILIARITY WITH INTELLECTUAL PROPERTY ISSUES AND ATTITUDES ABOUT OWNERSHIP OF INFORMATION

	Total	Rate Self: Familiar With Issue	Rate Self: Not Familiar With Issue
	%	%	%
Strongly/Somewhat Agree			
Information organized in a particular way is a product that can be sold just like any other product	65	77	61
If information has been paid for once, from then on anybody should be able to use it	58	60	58
A person creates something new if they take an old idea but they present it differently	53	57	51
If you rent a home movie, you can do anything you want with it--play it for whomever you like, make copies--as long as you don't destroy it	48	43	50
Taping a friend's record is like stealing a record	48	43	50
If you make changes to some creative work, like a song or a recipe, you have a right to claim that the product is yours	43	33	47

Question 1: I would like to begin by reading you a few statements people have made about the role of information in our society and how it is used and controlled. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each one.

TABLE I-3

PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES AND ATTITUDES ABOUT OWNERSHIP OF INFORMATION

	Total	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%	%
Strongly/Somewhat Agree				
Information organized in a particular way is a product that can be sold just like any other product	65	69	68	60
If information has been paid for once, from then on anybody should be able to use it	58	59	59	57
A person creates something new if they take an old idea but they present it differently	53	58	54	46
Taping a friend's record is like stealing a record	48	47	47	50
If you rent a home movie, you can do anything you want with it--play it for whomever you like, make copies--as long as you don't destroy it	48	48	48	46
If you make changes to some creative work, like a song or a recipe, you have a right to claim that the product is yours	43	47	39	42

Question 1: I would like to begin by reading you a few statements people have made about the role of information in our society and how it is used and controlled. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each one.

TABLE I-4

FAMILIARITY WITH THE INTELLECTUAL PROPERTY RIGHTS ISSUE AND AGE

		Age			
	Total	Under 30 Years	30-39 Years	40-54 Years	Over 54 Years
	%	%	%	%	%
Very/moderately familiar	29	34	36	30	18
Only slightly familiar	39	43	45	39	32
Not at all familiar	32	23	19	31	50

Question 5: A number of the actions we were talking about earlier, like copying, are now being discussed in Congress and in the courts. The issue, sometimes referred to as intellectual property rights, concerns the rights individuals and businesses have to protect their intellectual or creative efforts so that they can control or sell them as they see fit. Would you say you were:

TABLE I-5

FAMILIARITY WITH THE INTELLECTUAL PROPERTY RIGHTS ISSUE AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	(100%)	(29%)	(71%)
	%	%	%
Very/moderately familiar	29	44	23
Only slightly familiar	39	39	39
Not at all familiar	32	17	38

Question 5: A number of the actions we were talking about earlier, like copying, are now being discussed in Congress and in the courts. The issue, sometimes referred to as intellectual property rights, concerns the rights individuals and businesses have to protect their intellectual or creative efforts so that they can control or sell them as they see fit. Would you say you were:

TABLE I-6

FAMILIARITY WITH THE INTELLECTUAL PROPERTY RIGHTS ISSUE AND HOUSEHOLD INCOME

		Annual Household Income		
	Total	Under $20,000	$20,000-34,999	$35,000 and Over
	%	%	%	%
Very/moderately familiar	29	14	39	44
Only slightly familiar	39	41	38	41
Not at all familiar	32	45	23	15

Question 5: A number of the actions we were talking about earlier, like copying, are now being discussed in Congress and in the courts. The issue, sometimes referred to as intellectual property rights, concerns the rights individuals and businesses have to protect their intellectual or creative efforts so that they can control or sell them as they see fit. Would you say you were:

TABLE I-7

PERCEIVED PERSONAL AFFECT OF THE INTELLECTUAL PROPERTY RIGHTS ISSUE AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	(100%)	(29%)	(71%)
	%	%	%
Yes, affects me a great deal	6	7	6
	>32%	>45%	>27%
Yes, affects me a little	26	38	21
No, does not affect me	67	54	72
Don't know	1	1	1

Question 6: Is this an issue that has affected you personally?

TABLE I-8

PERCEIVED PERSONAL AFFECT OF THE INTELLECTUAL PROPERTY RIGHTS ISSUE AND FAMILIARITY WITH THE ISSUE

	Total	Familiar With Issue	Not Familiar With Issue
	%	%	%
Yes, affects me a great deal	6	12	4
Yes, affects me a little	26	40	20
No, does not affect me	67	47	75
Don't know	1	-	1

Question 6: Is this an issue that has affected you personally?

TABLE I-9

PERCEIVED PERSONAL AFFECT OF THE INTELLECTUAL PROPERTY RIGHTS ISSUE IN FUTURE AND AGE

		Age			
	Total	Under 30 Years	30-39 Years	40-54 Years	Over 54 Years
	%	%	%	%	%
Yes, will affect me a great deal	22	31	35	19	7
	63%	77%	72%	58%	45%
Yes, will affect me a little	41	46	37	39	38
No, will not affect me	31	21	24	38	42
Don't know	6	2	4	4	13

Question 7: Is this an issue you think might affect you in the future?

TABLE I-10

PERCEIVED PERSONAL AFFECT OF THE INTELLECTUAL PROPERTY RIGHTS ISSUE IN FUTURE AND OWNERSHIP OF HOME TECHONOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	(100%)	(29%)	(71%)
	%	%	%
Yes, will affect me a great deal	22	33	17
	>63%	>78%	>56%
Yes, will affect me a little	41	45	39
No, will not affect me	31	17	37
Don't know	6	5	7

Question 7: Is this an issue you think might affect you in the future?

TABLE I-11

PERCEIVED PERSONAL AFFECT OF THE INTELLECTUAL PROPERTY RIGHTS ISSUE IN FUTURE AND FAMILIARITY WITH THE ISSUES

	Total	Familiar With Issue	Not Familiar With Issue
	%	%	%
Yes, will affect me a great deal	6	40	14
Yes, will affect me a little	26	42	40
No, will not affect me	67	16	38
Don't know	1	2	8

Question 7: Is this an issue you think might affect you in the future?

CHAPTER II

PUBLIC ACCEPTANCE OF INTELLECTUAL PROPERTY RIGHTS

CHAPTER II

PUBLIC ACCEPTANCE OF INTELLECTUAL PROPERTY RIGHTS

In exploring public perceptions of issues such as intellectual property rights, it is useful to include both an attitudinal and a behavioral component. To begin with there are the attitudes people hold about the issue--whether it is a problem, how much of a problem, and what can be done about it. Secondly, these attitudes can be inferred also by asking about behaviors people find acceptable. The latter approach is addressed in this chapter. Specifically:

...Acceptability of behaviors, which indicate the de facto nature and extent of intellectual property rights, is discussed.

...Factors are explored that influence or further define the conditions under which specific behaviors are seen as acceptable.

Specific Behaviors Indicating Respect for Intellectual Property Rights

The public was asked to assess whether specific behaviors--they were given examples indicating sympathy or lack of sympathy for the ownership of intellectual property--were things which they themselves would do.

The examples involved the use of present day technologies to either copy, intercept or otherwise obtain information or entertainment without compensating the owners of the rights to the intellectual property. The public divides the specific examples, illustrating their views on ownership of intellectual property, into five categories:

...A majority of the public (over 7 in 10) believes that copying personal possessions, like a record or a program from one's own TV, is acceptable behavior.

...A majority of the public believes that trading and copying information and entertainment such as computer programs and records is acceptable behavior.

...When there is an issue of access--either the information is readily available such as a library book or there is a question whether the information (broadcast signals or airwaves) should be free--the public is divided.

...More than 8 in 10 among the public find behaviors that obviously circumvent a fee or service to be unacceptable.

...There is almost complete unanimity among the public that behaviors which jeopardize privacy such as entering a data bank without permission are unacceptable.

The particular technology employed in the specific behavioral examples appears to have some slight impact on whether or not the public is more or less sensitive to ownership of intellectual property issues. For example, more people find it acceptable to trade and copy computer programs than to trade and copy records. However, in general, the particular technology is less important than other factors in determining what is acceptable behavior.

Two key behaviors were chosen (here and in Chapter V below) to act as bellwethers of the public's willingness to respect intellectual property rights. The two specific behaviors are trading and copying computer programs and trading and copying records. They are useful indicators both because of the "nonpublic" way in which the copying can be carried out and because of the relative ease of accessibility of the needed technology to copy. At present, a majority of the public finds these behaviors--which some say disregard ownership of intellectual property--acceptable.

(Table II-1)

Factors Which Influence Acceptability Ratings

There are some behaviors about which there is considerable public consensus. There are also behaviors which are borderline--where there is less consensus on acceptability. The question arises: What helps to explain why some find these behaviors acceptable when others do not?

Surprisingly, factors that do not appear at all related to whether or not the public finds a particular behavior acceptable include:

...Familiarity with the issue of intellectual property rights.

...Self-interest, that is, feeling personally affected by the issue.

...Familiarity with technologies in general, specifically, ownership of a home technology.

(Tables II-2 to II-4)

On the other hand, factors that do appear to explain whether a particular behavior is acceptable in the public's view, include:

...The age of the respondent--where those under 40 years of age are slightly more accepting of some copying behaviors.

...The greater acceptability of copying computer programs among those who own home computers, indicating the relation between familiarity with a specific technology and a specific form of copying behavior.

...A greater willingness to find acceptable behaviors which are not copying behaviors and which are considered "gray" areas in terms of their moral exactitude.

(Tables II-5 to II-8)

Factors Which Influence Public Tolerance

While there appears to be considerable public acceptance of certain behaviors which might jeopardize intellectual property rights, there are conditions which the public says lessen their tolerance for behaviors such as copying copyrighted material.

The public finds it less acceptable to copy or use intellectual property without permission when it is done:

...For other than personal use--including any use outside the home.

...When the copied materials are used in a public way, even when done by such nonprofit institutions as schools.

...For sale or personal gain such as selling copies of a pirated record or as an enticement for customers.

...On behalf of a large corporation or as part of work performed.

There is a lack of consensus among the public over the kinds of behaviors that are acceptable for individuals to do, but the vast majority of the public agrees that when done for profit or as part of a business, violations of intellectual property rights are unacceptable. This is true regardless of the kind of behavior involved. This fact, then, provides an important delineator of public support when considering possible solutions to the intellectual property rights problem. Laws prohibiting copying for commercial purposes would enjoy considerable public backing; whereas, laws against copying for personal use would not.

(Tables II-9 to II-17)

TABLE II-1

ACCEPTABILITY OF BEHAVIORS INDICATING RESPECT FOR INTELLECTUAL PROPERTY RIGHTS

	Total
	%
Making a copy of a record or tape that you already own for your own use	88
Copying a TV program using a video cassette recorder	77
Trading computer programs with friends in order to make copies on your computer for your own use	61
Trading a taped copy of your record for a record you don't have	52
Making a copy of a library book	49
Installing a satellite dish to receive broadcast signals without buying the satellite service	44
Recording a rock concert without the knowledge of the producers	20
Purchasing a descrambler and using it to watch pay TV without having to pay for it	15
Using a computer to get into someone else's data bank to look at the data without permission	2

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

TABLE II-2

ACCEPTABILITY OF BEHAVIORS INDICATING RESPECT FOR INTELLECTUAL PROPERTY RIGHTS AND PERCEIVED FAMILIARITY WITH THE ISSUE

	Familiar With Issues	Not Familiar With Issues
	%	%
Making a copy of a record or tape that you already own for your own use	84	80
Copying a TV program using a video cassette recorder	73	62
Trading computer programs with friends in order to make copies on your computer for your own use	48	47
Trading a taped copy of your record for a record you don't have	43	38
Making a copy of a library book	41	35
Installing a satellite dish to receive broadcast signals without buying the satellite service	38	29
Recording a rock concert without the knowledge of the producers	15	16
Purchasing a descrambler and using it to watch pay TV without having to pay for it	8	11
Using a computer to get into someone else's databank to look at the data without permission	1	1

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

TABLE II-3

ACCEPTABILITY OF BEHAVIORS INDICATING RESPECT FOR INTELLECTUAL PROPERTY RIGHTS AND THE PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES

	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%
Making a copy of a record or tape that you already own for your own use	82	82	80
Copying a TV program using a video cassette recorder	71	64	62
Trading computer programs with friends in order to make copies on your computer for your own use	47	48	46
Trading a taped copy of your record for a record you don't have	40	40	38
Making a copy of a library book	40	34	36
Installing a satellite dish to receive broadcast signals without buying the satellite service	40	26	29
Recording a rock concert without the knowledge of the producers	13	15	18
Purchasing a descrambler and using it to watch pay TV without having to pay for it	8	4	18
Using a computer to get into someone else's databank to look at the data without permission	1	1	2

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

TABLE II-4

ACCEPTABILITY OF BEHAVIORS INDICATING RESPECT FOR INTELLECTUAL PROPERTY RIGHTS AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
Making a copy of a record or tape that you already own for your own use	82	86	80
Copying a TV program using a video cassette recorder	66	75	62
Trading computer programs with friends in order to make copies on your computer for your own use	47	51	46
Trading a taped copy of your record for a record you don't have	39	43	38
Making a copy of a library book	36	36	37
Installing a satellite dish to receive broadcast signals without buying the satellite service	32	36	30
Recording a rock concert without the knowledge of the producers	15	16	15
Purchasing a descrambler and using it to watch pay TV without having to pay for it	10	9	11
Using a computer to get into someone else's databank to look at the data without permission	1	3	1

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

TABLE II-5

ACCEPTABILITY OF BEHAVIORS INDICATING RESPECT FOR INTELLECTUAL PROPERTY RIGHTS AND AGE

	Age			
	Under 30 Years	30-39 Years	40-54 Years	Over 54 Years
	%	%	%	%
Making a copy of a record or tape that you already own for your own use	89	87	87	85
Copying a TV program using a video cassette recorder	83	86	81	64
Trading computer programs with friends in order to make copies on your computer for your own use	66	62	60	57
Trading a taped copy of your record for a record you don't have	60	61	54	38
Installing a satellite dish to receive broadcast signals without buying the satellite service	51	51	35	40
Making a copy of a library book	50	53	39	54
Recording a rock concert without the knowledge of the producers	21	19	21	20
Purchasing a descrambler and using it to watch pay TV without having to pay for it	16	17	15	14
Using a computer to get into someone else's data bank to look at the data without permission	4	1	2	-

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

TABLE II-6

FAMILIARITY WITH COMPUTER TECHNOLOGY AND ACCEPTABILITY OF TRADING COMPUTER PROGRAMS AND COPYING THEM FOR YOUR OWN USE

	Total
	%
Total	61
Own Home Computer	
Yes	73
No	59
Computer-Related Work	
Yes	60
No	61

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

g. Trading computer programs with friends in order to make copies on your computer for your own use.

TABLE II-7

AGREEMENT THAT QUESTIONABLE BEHAVIORS ARE UNACCEPTABLE AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
Keeping the extra $10 in change you mistakenly received when shopping in a large department store	90	91	90
Copying a $400 computer program instead of purchasing it	83	73	85
Cutting a few corners on your tax return to make ends meet	80	80	80
Adding a little extra to your insurance claim when you report an accident or theft	92	90	92

Question 4: There are some behaviors that are called "gray" areas because not everyone agrees whether they are generally right or wrong. I am going to read a few such behaviors to you. Please tell me using a scale from "1" to "6" where "1" is "not at all acceptable" and "6" "perfectly acceptable," as far as you personally are concerned to what extent is the behavior acceptable or not.

TABLE II-8

ACCEPTABILITY OF BEHAVIORS THAT INDICATE RESPECT FOR INTELLECTUAL PROPERTY RIGHTS BY A SCORE MEASURING ACCEPTABILITY OF GRAY AREA BEHAVIORS

	Total	Flexible Moralists	Conventional Moralists[1]
	(100%)	(24%)	(76%)
	%	%	%
Making a copy of a record or tape you already own	88	91	87
Copying a TV program using a video cassette recorder	77	88	74
Trading computer programs with friends for your own use	61	75	57
Trading a taped copy of your record for a record you don't have	52	66	48
Making a copy of a library book	49	57	47
Installing a satellite dish without buying the service	44	60	39
Recording a rock concert	20	34	16
Purchasing a descrambler and using it to watch pay TV	15	32	10
Getting into someone else's data bank to look at the data	2	4	1

[1] Flexible and conventional moralists are defined by their scores on three items measuring acceptability of "gray area" behaviors. Flexible moralists had high scores on acceptability of the gray area behaviors. Conventional moralists had low scores. (See Table II-7)

Question 2: I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the action to be.

TABLE II-9

FACTORS INFLUENCING ACCEPTABILITY OF VIDEOTAPING

	Circumstances Make Actions:		
	More Acceptable	Less Acceptable	No Difference
100%→	%	%	%
Invites his friends over to watch with him	13	7	80
Provides a copy to the local high school football coach to use in coaching his players	17	32	51
Shows the tape in a bar he owns as a way to bring in customers	6	71	23

Note: This table is percentaged horizontally.

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

a. Situation I: Ted uses his home video recorder to tape the Super Bowl from his TV set so that he can watch the game at home again sometime in the future.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-10

FACTORS INFLUENCING ACCEPTABILITY OF VIDEOTAPING

Base: Those Rating VCR Copying Acceptable

	Circumstances Make Actions: More Acceptable	Less Acceptable	No Difference
100%→	%	%	%
Invites his friends over to watch with him	12	5	83
Provides a copy to the local high school football coach to use in coaching his players	17	28	55
Shows the tape in a bar he owns as a way to bring in customers	7	68	25

Note: This table is percentaged horizontally.

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

a. Situation I: Ted uses his home video recorder to tape the Super Bowl from his TV set so that he can watch the game at home again sometime in the future.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-11

CONDITIONS THAT WOULD MAKE RECORDING THE SUPER BOWL ON TV LESS ACCEPTABLE

		Among Those Who Think the Behavior Is:	
	Total	Acceptable	Not Acceptable
	(100%)	(77%)	(22%)
	%	%	%
Friends were invited over to watch the recorded tape	7	5	17
Copies of the taped Super Bowl were provided to the local high school football coach	32	28	47
The tape of the Super Bowl was shown in a bar	71	68	82

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable, or makes no difference.

a. Situation I: Ted uses his home video recorder to tape the Super Bowl from his TV set so that he can watch the game at home again sometime in the future.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-12

FACTORS INFLUENCING ACCEPTABILITY OF COPYING SOFTWARE

	Circumstances Make Actions:		
	More Acceptable	Less Acceptable	No Difference
	%	%	%
100%→			
The cost of the program copied was very high	12	34	54
The copies made were used by a local high school's computer club	13	45	42
Works for a large corporation and as part of work makes copies for co-workers	10	63	27

Note: This table is percentaged horizontally.

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

b. Situation II: Mary just bought a personal computer, but she doesn't have all the software programs--that is the instructions used to tell the computer what to do--that she thinks she needs. She borrows some from a friend and using her computer makes copies for her own use.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-13

FACTORS INFLUENCING ACCEPTABILITY OF COPYING SOFTWARE

Base: Consider Trading Computer Software for
Personal Use Acceptable

	Circumstances Make Actions:		
	More Acceptable	Less Acceptable	No Difference
100%→	%	%	%
The cost of the program copied was very high	13	26	61
The copies were used by a local high school's computer club	13	41	46
Works for a large corporation and as part of work makes copies for co-workers	10	61	28

Note: This table is percentaged horizontally.

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

b. Situation II: Mary just bought a personal computer, but she doesn't have all the software programs--that is the instructions used to tell the computer what to do--that she thinks she needs. She borrows some from a friend and using her computer makes copies for her own use.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-14

CONDITIONS THAT WOULD MAKE TRADING SOFTWARE AND COPYING IT LESS ACCEPTABLE

		Among Those Who Think the Behavior Is:	
	Total	Acceptable	Not Acceptable
	(100%)	(61%)	(38%)
	%	%	%
The cost of the program copied was very high	34	26	47
Copies were used by a local high school computer club	45	41	50
Working for a large corporation and making copies for co-workers	62	61	66

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

b. Situation II: Mary just bought a personal computer, but she doesn't have all the software programs--that is the instructions used to tell the computer what to do--that she thinks she needs. She borrows some from a friend and using her computer makes copies for her own use.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-15

FACTORS INFLUENCING ACCEPTABILITY OF AUDIOTAPING

	Circumstances Make Actions:		
	More Acceptable	Less Acceptable	No Difference
	%	%	%
100%→			
He plays the tape at a local club dance	4	62	34
Made many copies and gave them away	6	68	26
Made many copies and sold them	2	91	7

Note: This table is percentaged horizontally.

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

c. Situation III: Jim went to a rock concert and used his high quality cassette recorder to record it without the knowledge of the producers.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-16

FACTORS INFLUENCING ACCEPTABILITY OF AUDIOTAPING

Base: Recording a Rock Concert Without
Permission Is Acceptable

	Circumstances Make Actions:		
	More Acceptable	Less Acceptable	No Difference
100% →	%	%	%
He plays the tape at a local club dance	8	46	46
Made many copies and gave them away	14	47	39
Made many copies and sold them	5	81	14

Note: This table is percentaged horizontally.

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

c. Situation III: Jim went to a rock concert and used his high quality cassette recorder to record it without the knowledge of the producers.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE II-17

CONDITIONS THAT WOULD MAKE RECORDING A ROCK CONCERT WITHOUT PERMISSION LESS ACCEPTABLE

		Among Those Who Think the Behavior Is:	
	Total	Acceptable	Not Acceptable
	(100%)	(20%)	(79%)
	%	%	%
Playing the recording at a local club dance	62	45	66
Making many copies and giving them away	68	47	73
Making many copies and selling them	91	81	94

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

c. Situation III: Jim went to a rock concert and used his high quality cassette recorder to record it without the knowledge of the producers.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

CHAPTER III

PUBLIC PERCEPTIONS OF A PROBLEM

CHAPTER III

PUBLIC PERCEPTIONS OF A PROBLEM

The intellectual property rights issue is not now perceived as one of great personal importance to most members of the public--they do not feel they are personally affected by it. However, when asked, most people do voice concerns over possible consequences suggested for their consideration. And while the public is not looking for immediate action or solutions, there remains a perception that there will be a future need for action, possibly prompted by these concerns.

Likely Consequences and Degree of Concern

The majority of the public believes that diverse negative consequences are likely if intellectual property is not protected more than it is now:

...Almost 2 in 3 think it likely that small companies and individuals will lose out.

...About 6 in 10 believe foreign countries will obtain benefits from creative works without having to make the investment to produce them.

...About 6 in 10 believe that people who do not copy will have to pay higher prices for products to compensate for others who avoid full payment by copying.

Not only do people think these consequences are likely, but there is also a high degree of concern among those who believe there will be consequences. (This generally consistent high level of concern is only somewhat less prevalent among those not familiar with the issue or who believe they will not be affected by the issue.)

(Tables III-1 to III-6)

Need for Additional Protection

A substantial majority (72%) of the public believes that additional protection of intellectual and creative property rights is necessary. However, over two-thirds of those who think it necessary say that it is "probably," not "definitely," necessary. Further, assessments of whether additional protection is necessary are not affected by:

Familiarity with the issue
Self-interest
Age
Ownership of a home technology.

Together this suggests that for most people, the issue is still in the realm of a theoretical consideration and that feelings about the issue are not strong.

(Tables III-7 to III-11)

TABLE III-1

LIKELY RESULTS WITHOUT MORE INTELLECTUAL PROPERTY PROTECTION AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
It Is Likely That:[1/]			
Many small companies and individuals will lose out	65	62	66
Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them	60	58	61
People who do not copy will have to pay higher prices for these products	59	61	58
Young people will come to believe that it is OK just to take other people's property	48	42	50
People will stop creating things like movies, songs and computer programs	27	20	30

[1/] Top three points on a 6-point scale.

Question 8b: Using a scale from "1" to "6" where "6" is extremely likely and "1" is not at all likely, please tell me how likely you think each of the following things would be in the future if intellectual property is *not* protected any more than it is now.

TABLE III-2

LIKELY RESULTS WITHOUT MORE INTELLECTUAL PROPERTY PROTECTION AND PERCEIVED FAMILIARITY WITH THE ISSUE

It Is Likely That:[1]	Familiar With Issues	Not Familiar With Issues
	%	%
Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them	67	57
Many small companies and individuals will lose out	65	65
People who do not copy will have to pay higher prices for these products	62	58
Young people will come to believe that it is OK just to take other people's property	46	49
People will stop creating things like movies, songs and computer programs	24	28

[1] Top three points on a 6-point scale.

Question 8b: Using a scale from "1" to "6" where "6" is extremely likely and "1" is not at all likely, please tell me how likely you think each of the following things would be in the future if intellectual property is not protected any more than it is now.

TABLE III-3

LIKELY RESULTS WITHOUT MORE INTELLECTUAL PROPERTY PROTECTION AND PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES

	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%
It Is Likely That:[1/]			
Many small companies and individuals will lose out	64	70	61
Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them	62	62	56
People who do not copy will have to pay higher prices for these products	61	67	52
Young people will come to believe that it is OK just to take other people's property	43	52	49
People will stop creating things like movies, songs and computer programs	28	25	28

[1/] Top three points on a 6-point scale.

Question 8b: Using a scale from "1" to "6" where "6" is extremely likely and "1" is not at all likely, please tell me how likely you think each of the following things would be in the future if intellectual property is not protected any more than it is now.

TABLE III-4

CONCERN ABOUT RESULTS WITHOUT MORE PROTECTION AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
Concern That:[1/]			
Young people will come to believe that it is OK just to take other people's property	91	94	90
Many small companies and individuals will lose out	83	85	83
Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them	79	72	83
People who do not copy will have to pay higher prices for these products	69	68	69
People will stop creating things like movies, songs and computer programs	68	74	68

[1/] Top three points on a 6-point scale.

Question 8c: I am going to read some of these statements to you again, but this time I would like you to tell me how concerned you are about it. Again using a scale from "1" to "6" where "6" is extremely concerned and "1" is not at all concerned, how concerned are you about the result?

TABLE III-5

CONCERN ABOUT RESULTS WITHOUT MORE PROTECTION AND PERCEIVED FAMILIARITY WITH THE ISSUE

Concern That:[1/]	Familiar With Issues	Not Familiar With Issues
	%	%
Young people will come to believe that it is OK just to take other people's property	90	90
Many small companies and individuals will lose out	88	82
Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them	81	80
People will stop creating things like movies, songs and computer programs	79	67
People who do not copy will have to pay higher prices for these products	77	65

[1/] Top three points on a 6-point scale.

Question 8c: I am going to read some of these statements to you again, but this time I would like you to tell me how concerned you are about it. Again using a scale from "1" to "6" where "6" is extremely concerned and "1" is not at all concerned, how concerned are you about the result?

TABLE III-6

CONCERN ABOUT RESULTS WITHOUT MORE PROTECTION AND PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES

	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%
Concern That:[1]			
Young people will come to believe that it is OK just to take other people's property	95	91	86
Many small companies and individuals will lose out	88	86	79
Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them	85	78	76
People will stop creating things like movies, songs and computer programs	77	75	56
People who do not copy will have to pay higher prices for these products	77	70	58

[1] Top three points on a 6-point scale.

Question 8c: I am going to read some of these statements to you again, but this time I would like you to tell me how concerned you are about it. Again using a scale from "1" to "6" where "6" is extremely concerned and "1" is not at all concerned, how concerned are you about the result?

TABLE III-7

NEED FOR ADDITIONAL PROTECTION OF INTELLECTUAL AND CREATIVE PROPERTY RIGHTS

	Total	
	%	
Definitely necessary	22	>72%
Probably necessary	50	
Probably not necessary	17	
Definitely not necessary	7	
Don't know	4	

Question 8a: With the development of computers and home entertainment systems like video cassette recorders, there is now discussion whether additional protection of intellectual and creative property rights is necessary. Would you say additional protection is:

TABLE III-8

NEED FOR ADDITIONAL PROTECTION OF INTELLECTUAL AND CREATIVE PROPERTY RIGHTS AND PERCEIVED FAMILIARITY WITH THE ISSUE

	Familiar With Issues	Not Familiar With Issues
	%	%
Definitely necessary	25	21
Probably necessary	47	51
Probably not necessary	17	17
Definitely not necessary	9	6
Don't know	2	5

Question 8a: With the development of computers and home entertainment systems like video cassette recorders, there is now discussion whether additional protection of intellectual and creative property rights is necessary. Would you say additional protection is:

TABLE III-9

NEED FOR ADDITIONAL PROTECTION OF INTELLECTUAL AND CREATIVE PROPERTY RIGHTS AND PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES

	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%
Definitely necessary	25	21	20
Probably necessary	48	53	51
Probably _not_ necessary	16	17	18
Definitely _not_ necessary	7	6	7
Don't know	4	3	4

Question 8a: With the development of computers and home entertainment systems like video cassette recorders, there is now discussion whether additional protection of intellectual and creative property rights is necessary. Would you say additional protection is:

TABLE III-10

NEED FOR ADDITIONAL PROTECTION OF INTELLECTUAL AND CREATIVE PROPERTY RIGHTS AND AGE

	Age			
	Under 30 Years	30-39 Years	40-54 Years	Over 54 Years
	%	%	%	%
Definitely necessary	23	14	17	30
Probably necessary	51	55	52	44
Probably not necessary	18	17	22	13
Definitely not necessary	8	9	3	8
Don't know	-	5	6	5

Question 8a: With the development of computers and home entertainment systems like video cassette recorders, there is now discussion whether additional protection of intellectual and creative property rights is necessary. Would you say additional protection is:

TABLE III-11

NEED FOR ADDITIONAL PROTECTION OF INTELLECTUAL AND CREATIVE PROPERTY RIGHTS AND OWNERSHIP OF HOME TECHNOLOGIES

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
Definitely necessary	22	17	24
Probably necessary	50	51	50
Probably *not* necessary	17	20	16
Definitely *not* necessary	7	8	6
Don't know	4	4	4

Question 8a: With the development of computers and home entertainment systems like video cassette recorders, there is now discussion whether additional protection of intellectual and creative property rights is necessary. Would you say additional protection is:

CHAPTER IV

VIEWS ON SOLUTIONS

CHAPTER IV

VIEWS ON SOLUTIONS

The public sees the issue of intellectual property rights as basically business' problem; thus business should find the solutions. This is certainly in keeping with the public policy climate in general which, on balance, has moved away from demands for governmental involvement in this new era of self-reliance.

Further, as was learned in the focused groups for this project, the public does not clearly distinguish between the various segments of the business community. For example, they tend not to differentiate between the computer hardware and software industries.

Responsibility for Solving Any Problems

A majority of the public (54%) believes that the primary responsibility for solving any problems associated with intellectual or creative property (created by new technologies like home computers or VCR's) rests with the information and entertainment industries.

The view that this is business' concern is consistent among the various demographic groups as well as among those with technological experience or familiarity with the issue.

(Tables IV-1 to IV-4)

Not only does the public place responsibility in the hands of businesses which produce copyrighted materials for finding solutions, but they also expect businesses which use such materials to police their own employees. About three-quarters of the public believe that business should actively control employees' actions in the area of intellectual property rights, even if they have not encouraged misuse of these rights. Specifically:

...Over 3 in 10 believe business has total responsibility for their employees' actions.

...Over 4 in 10 believe that business remains responsible if they do not make an effort to control their employees' actions.

(Table IV-5)

The Workability of Various Solutions

Another indication that the public prefers marketplace solutions comes from their perceptions of what kinds of solutions they deem appropriate. They were asked whether any of five suggested approaches would be workable as attempts to ensure that intellectual and creative property is protected. Most people would rely on education programs or new technologies as being completely or somewhat workable. A plurality (45%) believes that new and tougher laws and regulations are only "somewhat" workable. Thus, the emphasis appears not to be on government intervention at this time.

(Tables IV-6 to IV-9)

TABLE IV-1

PRIMARY RESPONSIBILITY FOR SOLVING INTELLECTUAL OR CREATIVE PROPERTY PROBLEMS AND PERCEIVED FAMILIARITY WITH THE ISSUE

	Total	Familiar With Issues	Not Familiar With Issues
	%	%	%
Businesses in the information and entertainment industries	54	54	53
The government	34	33	35
Both	8	11	7
Neither	1	1	1
Don't know	3	1	4

Question 9a: Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies (like computers or video cassette recorders)? Would you say this is:

TABLE IV-2

PRIMARY RESPONSIBILITY FOR SOLVING INTELLECTUAL OR CREATIVE PROPERTY PROBLEMS AND PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES

	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%
Businesses in the information and entertainment industries	53	57	52
The government	36	33	34
Both	8	9	7
Neither	1	1	2
Don't know	2	-	5

Question 9a: Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies (like computers or video cassette recorders)? Would you say this is:

TABLE IV-3

PRIMARY RESPONSIBILITY FOR SOLVING INTELLECTUAL OR CREATIVE PROPERTY PROBLEMS AND AGE

	Age			
	Under 30 Years	30-39 Years	40-54 Years	Over 54 Years
	%	%	%	%
Businesses in the information and entertainment industry	57	62	56	43
The government	33	28	32	41
Both	8	8	7	9
Neither	1	1	1	1
Don't know	1	1	4	6

Question 9a: Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies (like computers or video cassette recorders)? Would you say this is:

TABLE IV-4

PRIMARY RESPONSIBILITY FOR SOLVING INTELLECTUAL OR CREATIVE PROPERTY PROBLEMS AND OWNERSHIP OF HOME TECHNOLOGIES

	Ownership of a VCR or a Home Computer	
	Yes	No
	%	%
Businesses in the information and entertainment industries	59	52
The government	30	36
Both	7	8
Neither	2	1
Don't know	2	3

Question 9a: Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies (like computers or video cassette recorders)? Would you say this is:

TABLE IV-5

RESPONSIBILITY OF BUSINESS FOR ITS EMPLOYEES' ACTIONS WHEN THEY INVOLVE COPYING MATERIALS

	Total %
Totally responsible	32
Responsible only if they make no effort to control employees' actions	43
Responsible only if they encourage employees to do it	21
Not responsible at all	3
Don't know	1

Question 9b: How responsible do you think a business should be for its employees' actions, when they involve copying materials for computers and so forth, that the manufacturer says should not be copied? Are they:

TABLE IV-6

WORKABLE SOLUTIONS

	Degree Solution Is Workable			
	Completely	Somewhat	Only Slightly	Not at All
100% →	%	%	%	%
Investment in technologies like special codes that would prevent people from copying	37	37	14	12
Establishing a program to educate the public about what type of copying is legal and illegal	37	37	17	9
New and tougher laws and regulations by government	12	45	29	14
Taxes or a surcharge on items like tape or cassette recorders, blank tapes and so on	10	31	28	31
Setting the price of copyable items very high so people can make their money by selling just a few	5	20	25	50

Note: This table is percentaged horizontally.

Question 10a: I'm going to read you some ideas people have suggested to help make sure that intellectual and creative property rights are protected. As I read, please tell me to what extent you think the idea would be workable: completely, somewhat, only slightly, or not at all.

TABLE IV-7

WORKABILITY OF PROTECTION IDEAS AND OWNERSHIP OF HOME TECHNOLOGIES

Completely/Somewhat

		Ownership of a VCR or a Home Computer	
	Total	Yes	No
	%	%	%
New and tougher laws and regulations by government	57	54	58
Taxes or a surcharge on items like tape or cassette recorders, blank tapes and so on	41	42	40
Investment in technologies like special codes that would prevent people from copying	73	75	72
Setting the price of copyable items very high so people can make their money by selling just a few	25	24	26
Establishing a program to educate the public about what type of copying is legal and illegal	74	75	74

Question 10a: I'm going to read you some ideas people have suggested to help make sure that intellectual and creative property rights are protected. As I read, please tell me to what extent you think the idea would be workable: completely, somewhat, only slightly, or not at all.

TABLE IV-8

WORKABILITY OF PROTECTION IDEAS AND PERCEIVED IMPACT OF INTELLECTUAL PROPERTY RIGHTS ISSUES

Completely/Somewhat

	Affected Personally Now	Will Be Affected but Not Now	Will Not Be Affected Now or in Future
	%	%	%
New and tougher laws and regulations by government	53	61	56
Taxes or a surcharge on items like tape or cassette recorders, blank tapes and so on	42	46	35
Investment in technologies like special codes that would prevent people from copying	71	82	67
Setting the price of copyable items very high so people can make their money by selling just a few	22	31	23
Establishing a program to educate the public about what type of copying is legal and illegal	72	82	69

Question 10a: I'm going to read you some ideas people have suggested to help make sure that intellectual and creative property rights are protected. As I read, please tell me to what extent you think the idea would be workable: completely, somewhat, only slightly, or not at all.

TABLE IV-9

WORKABILITY OF PROTECTION IDEAS AND PERCEIVED FAMILIARITY WITH THE ISSUE

Completely/Somewhat

	Familiar With Issues	Not Familiar With Issues
	%	%
New and tougher laws and regulations by government	52	59
Taxes or a surcharge on items like tape or cassette recorders, blank tapes and so on	41	41
Investment in technologies like special codes that would prevent people from copying	78	71
Setting the price of copyable items very high so people can make their money by selling just a few	20	28
Establishing a program to educate the public about what type of copying is legal and illegal	71	75

Question 10a: I'm going to read you some ideas people have suggested to help make sure that intellectual and creative property rights are protected. As I read, please tell me to what extent you think the idea would be workable: completely, somewhat, only slightly, or not at all.

CHAPTER V

GROUPING THE PUBLIC: THREE PROTOTYPES

CHAPTER V

GROUPING THE PUBLIC: THREE PROTOTYPES

How does the public fall out on the issue of intellectual property rights? An attempt was made to characterize the views of the population as a whole, as if a snapshot were taken. This allows a preliminary understanding of how the public might react to the issue of intellectual property rights if it were presented to them, as well as provide some indication of likely support for various solutions intended to limit copying and other such behaviors. To do this, two key descriptors were used:

1. An expressed willingness to copy such items as computer programs and records, and
2. Views on the necessity for additional protections in this area.

Attitudes about these two factors illustrate whether a person is willing to disregard copyright laws or not and whether, either because they are offended by behavior which disregards intellectual property rights or through some sort of identification or self-interest, they believe additional safeguards are or are not necessary.

Using the above two indicators, three groups emerged as generally representative of public opinion on the issue of intellectual property rights.

The Three Groups

The three groups can be described as:

...Anticopiers, comprising 23% of the population.

...Pragmatists, comprising 55% of the population.

...Prosharing Copiers, comprising 22% of the population.

The Anticopiers, by definition, believe both copying computer programs and records to be unacceptable and generally think that additional protections of intellectual property are probably necessary.

The Anticopiers are somewhat older as a group and tend to see copying in terms of right and wrong. For example, over 6 in 10 believe that taping a record is like stealing. They also have the least tolerance for the sharing of copied materials.

The Pragmatists, by definition, think either copying computer programs or records is acceptable, but at the same time believe that additional protections are probably necessary.

The Pragmatists are the largest group; therefore, their views would tend to dominate public opinion, in general. Many among the Pragmatists view copying as ethically wrong, but appear willing to do it unless prevented.

Though willing to copy, 50% of Pragmatists agree that taping a record is like stealing and over 8 in 10 say that copying a $400 computer program is wrong. Pragmatists fall in between the two other groups when assessing the acceptability of "sharing" of information or entertainment that is short of selling it.

The Prosharing Copiers, by definition, believe at least one of the two copying behaviors is acceptable, but they are against additional protections. Prosharing Copiers as a group hold more positive views about information and the sharing of information. They also say they are less concerned about the negative consequences of not protecting intellectual property further.

Short of selling pirated copies of information, any method of sharing information is generally acceptable to them. At the same time, with the exception of copying expensive computer programs, Prosharing Copiers are no more likely than the other groups to say that examples of "gray" area behaviors are acceptable behaviors to them.

(Tables V-1 to V-5)

Views on Solutions

Generally the preponderance of opinion, in all three groups, favors placing primary responsibility for solving intellectual property problems in the hands of the interested industries. This appears to be true regardless of personal behaviors or attitudes.

In terms of workable solutions, again the three groups hardly vary. The exception is the Prosharing Copiers group. Fewer among them believe that the suggested solutions are workable, especially those involving legislation or educating the public against copying.

(Tables V-6 and V-7)

TABLE V-1

ATTITUDES ON INFORMATION BY GENERAL PUBLIC PROTOTYPES

	Anti-copiers	Pragma-tists	Pro-Sharers
	%	%	%
It is too easy to become overloaded with information	67	57	50
Taping a friend's record is like stealing a record	62	50	31
A person creates something new with an old idea but presents it differently	45	54	58
If you rent a home movie, you can do anything you want with it	29	51	61

Question 1: I would like to begin by reading you a few statements people have made about the role of information in our society and how it is used and controlled. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each one.

TABLE V-2

CONDITIONS THAT WOULD MAKE RECORDING THE SUPER BOWL ON TV LESS ACCEPTABLE BY GENERAL PUBLIC PROTOTYPES

	Anti-copiers	Pragmatists	Pro-Sharers
	%	%	%
Friends were invited over to watch the recorded tape	15	7	1
Copies of the taped Super Bowl were provided to the local high school football coach	42	33	15
The tape of the Super Bowl was shown in a bar	84	70	61

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

a. Situation I: Ted uses his home video recorder to tape the Super Bowl from his TV set so that he can watch the game at home again sometime in the future.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE V-3

CONDITIONS THAT WOULD MAKE TRADING SOFTWARE AND COPYING IT LESS ACCEPTABLE BY GENERAL PUBLIC PROTOTYPES

	Anti-copiers	Pragmatists	Pro-Sharers
	%	%	%
The cost of the program copied was very high	48	32	21
Copies were used by local high school computer club	51	47	28
Working for a large corporation and making copies for co-workers	72	65	49

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

b. Situation II: Mary just bought a personal computer, but she doesn't have all the software programs--that is the instructions used to tell the computer what to do--that she thinks she needs. She borrows some from a friend and using her computer makes copies for her own use.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE V-4

CONDITIONS THAT WOULD MAKE RECORDING A ROCK CONCERT WITHOUT PERMISSION LESS ACCEPTABLE BY GENERAL PUBLIC PROTOTYPES

	Anti-copiers	Pragmatists	Pro-Sharers
	%	%	%
Playing the recording at a local club dance	70	64	46
Making many copies and giving them away	74	70	54
Making many copies and selling them	89	92	92

Question 3: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

c. Situation III: Jim went to a rock concert and used his high quality cassette recorder to record it without the knowledge of the producers.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

TABLE V-5

ACCEPTABILITY OF "GRAY AREA" BEHAVIORS BY GENERAL PUBLIC PROTOTYPES

	Anti-copiers	Pragmatists	Pro-Sharers
	%	%	%
Adding a little extra to your insurance claim	93	91	90
Keeping the extra $10 in change mistakenly received	98	88	86
Copying a $400 computer program	95	84	65
Cutting a few corners on your tax return	88	79	73

Question 4: There are some behaviors that are called "gray" areas because not everyone agrees whether they are generally right or wrong. I am going to read a few such behaviors to you. Please tell me using a scale from "1" to "6" where "1" is "not at all acceptable" and "6" "perfectly acceptable," as far as you personally are concerned to what extent is the behavior acceptable or not.

TABLE V-6

PRIMARY RESPONSIBILITY FOR SOLVING INTELLECTUAL OR CREATIVE PROPERTY PROBLEMS BY GENERAL PUBLIC PROTOTYPES

	Anti-copiers	Pragmatists	Pro-Sharers
	%	%	%
Businesses in the information and entertainment industries	45	56	61
The government	36	33	33
Both	13	8	4
Neither	-	1	2
Don't know	6	3	-

Question 9a: Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies (like computers or video cassette recorders)? Would you say this is:

TABLE V-7

WORKABILITY OF PROTECTION IDEAS BY GENERAL PUBLIC PROTOTYPES

Completely/Somewhat

	Anti-copiers	Pragmatists	Pro-Sharers
	%	%	%
Establishing a program to educate the public about what type of copying is legal and illegal	78	78	63
Investment in technologies like special codes that would prevent people from copying	74	76	66
New and tougher laws and regulations by government	63	58	49
Taxes or a surcharge on items like tape or cassette recorders, blank tapes and so on	40	41	42
Setting the price of copyable items very high so people can make their money by selling just a few	22	27	27

Question 10a: I'm going to read you some ideas people have suggested to help make sure that intellectual and creative property rights are protected. As I read, please tell me to what extent you think the idea would be workable: completely, somewhat, only slightly, or not at all.

APPENDIX

Yankelovich, Skelly and White, Inc.

Study #5017
December 1984

QUESTIONNAIRE 1-

INTELLECTUAL PROPERTY RIGHTS 2-

3-
4-

Name:______________________________ CF#: ☐☐☐ - ☐☐ - ☐☐
5- 6- 7- 8- 9- 10- 11-

Area Code:____________Telephone No.:____________________________________

Time Started:__________Time Ended:__________Total Time: ☐☐ In Minutes
12- 13-

Interviewer:____

Date of Interview (ENTER ONE NUMBER TO A BOX): December ☐☐

SECTION I - ATTITUDES ABOUT INFORMATION

1. I would like to begin by reading you a few statements people have made about the role of information in our society and how it is used and controlled. For each statement, please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each one. (CIRCLE ONE NUMBER FOR EACH ITEM)

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Don't know (VOL)
a. In our modern society, the more access you have to information the better off you are...	14-1	-2	-3	-4	-5
b. If information has been paid for once, from then on anybody should be able to use it..............................	15-1	-2	-3	-4	-5
c. With modern technology it is too easy to become overloaded with information...........	16-1	-2	-3	-4	-5
d. Taping a friend's record is like stealing a record..	17-1	-2	-3	-4	-5
e. If you make changes to some creative work, like a song or a recipe, you have a right to claim that the product is yours...........	18-1	-2	-3	-4	-5
f. If you rent a home movie, you can do anything you want with it — play it for whomever you like, make copies — as long as you don't destroy it..............	19-1	-2	-3	-4	-5
g. A person creates something new if they take an old idea but they present it differently.................................	20-1	-2	-3	-4	-5
h. Information organized in a particular way is a product that can be sold just like any other product.........................	21-1	-2	-3	-4	-5

SECTION II - ATTITUDES TOWARD SPECIFIC BEHAVIORS

2. I am going to read to you a series of actions that people feel very differently about. As I read each one, please tell me to what extent it is acceptable to you such that it might be something you would do. I would like you to respond using a scale from "1" to "6" where 6 means the action is "perfectly acceptable" in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6". Remember the higher the number the more acceptable you feel the action to be. (INTERVIEWER: ALTERNATE THE START. WITH EVERY OTHER INTERVIEW START WITH ITEM H AND READ IN REVERSE ORDER. CIRCLE ONE NUMBER FOR EACH ITEM)

	Perfectly Acceptable					Not at all Acceptable
a. Recording a rock concert without the knowledge of the producers....................	22–6	-5	-4	-3	-2	-1
b. Using a computer to get into someone else's databank to look at the data without permission............................	23–6	-5	-4	-3	-2	-1
c. Trading a taped copy of your record for a record you don't have..................	24–6	-5	-4	-3	-2	-1
d. Purchasing a descrambler and using it to watch pay TV without having to pay for it..	25–6	-5	-4	-3	-2	-1
e. Copying a TV program using a video cassette recorder	26–6	-5	-4	-3	-2	-1
f. Making a copy of a library book..............	27–6	-5	-4	-3	-2	-1
g. Trading computer programs with friends in order to make copies on your computer for your own use..............................	28–6	-5	-4	-3	-2	-1
h. Making a copy of a record or tape that you already own for your own use.............	29–6	-5	-4	-3	-2	-1
i. Installing a satellite dish to receive broadcast signals without buying the satellite service.............................	30–6	-5	-4	-3	-2	-1

3. Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference. (INTERVIEWER: YOU ARE RECORDING DIFFERENCES FROM THE ORIGINAL SITUATION, NOT WHETHER THE SITUATION IS ACCEPTABLE OR NOT.)

a. Situation I: Ted uses his home video recorder to tape the Super Bowl from his TV set so that he can watch the game at home again sometime in the future.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

	More	Less	No Difference
1. Ted invites his friends over to watch with him.........	31-1	2	3
How about if:			
2. He provides a copy to the local high school football coach to use in coaching his players....................	32-1	2	3
How about if:			
3. He shows the tape in a bar he owns as a way to bring in customers......................................	33-1	2	3

b. Situation II: Mary just bought a personal computer, but she doesn't have all the software programs — that is the instructions used to tell the computer what to do — that she thinks she needs. She borrows some from a friend and using her computer makes copies for her own use.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

	More	Less	No Difference
1. The cost of the program she copied was very high.......	34-1	2	3
And if:			
2. The copies she made were used by a local high school's computer club..............................,.....	35-1	2	3
And if:			
3. Mary works for a large corporation and as part of her work she makes copies for her co-workers........	36-1	2	3

c. Situation III: Jim went to a rock concert and used his high quality cassette recorder to record it without the knowledge of the producers.

Does it make the situation more acceptable, less acceptable or does it make no difference if:

	More	Less	No Difference
1. He plays the tape at a local club dance.................	37-1	2	3
What if:			
2. Jim made many copies and gave them away.................	38-1	2	3
What if:			
3. Jim made many copies and sold them......................	39-1	2	3

SECTION III - REACTIONS TO THE INTELLECTUAL PROPERTY RIGHTS ISSUE

4. There are some behaviors that are called "gray" areas because not everyone agrees whether they are generally right or wrong. I am going to read a few such behaviors to you. Please tell me using a scale from "1" to "6" where "1" is "not at all acceptable" and "6" "perfectly acceptable", as far as you personally are concerned to what extent is the behavior acceptable or not. (READ EACH BEHAVIOR AND CIRCLE ONE RESPONSE)

Behavior	Perfectly Acceptable					Not at all Acceptable
a. Keeping the extra $10 in change you mistakenly received when shopping in a large department store	40-6	-5	-4	-3	-2	-1
b. Copying a $400 computer program instead of purchasing it	41-6	-5	-4	-3	-2	-1
c. Cutting a few corners on your tax return to make ends meet	42-6	-5	-4	-3	-2	-1
d. Adding a little extra to your insurance claim when you report an accident or theft	43-6	-5	-4	-3	-2	-1

5. A number of the actions we were talking about earlier, like copying, are now being discussed in Congress and in the courts. The issue, sometimes referred to as intellectual property rights, concerns the rights individuals and businesses have to protect their intellectual or creative efforts so that they can control or sell them as they see fit. Would you say you were: (READ AND CIRCLE ONE)

Very familiar	44-1
Moderately familiar	-2
Only slightly familiar	-3
or	
Not at all familiar with this issue	-4
Don't know (VOLUNTEERED)	-5

6. Is this an issue that has affected you personally? (READ AND CIRCLE ONE)

Yes, it affects me a great deal	45-1
Yes, it affects me a little	-2
No, it does not affect me	-3
Don't know (volunteered)	-4

7. Is this an issue you think might affect you in the future? (READ AND CIRCLE ONE)

Yes, it will affect me a lot	46-1
Yes, it will affect me a little	-2
No, it will not affect me	-3
Don't know (VOLUNTEERED)	-4

IV - IMPLICATIONS AND CONSEQUENCES

8a. With the development of computers and home entertainment systems like video cassette recorders, there is now discussion whether additional protection of intellectual and creative property rights is necessary. Would you say additional protection is: (READ AND CIRCLE ONE)

Definitely necessary..........47-1
Probably necessary............ -2
Probably not necessary........ -3
or
Definitely not necessary...... -4
Don't know (VOLUNTEERED)...... -5

8b. Using a scale from "1" to "6" where "6" is extremely likely and "1" is not at all likely, please tell me how likely you think each of the following things would be in the future if intellectual property is not protected any more than it is now? (READ EACH STATEMENT AND CIRCLE ONE RESPONSE)

c. (FOR ALL STATEMENTS IN Q8b THAT WERE ANSWERED WITH A 4,5, OR 6, ASK RESPONDENT:) I am going to read some of these statements to you again, but this time I would like you to tell me how concerned you are about it. Again using a scale from "1" to "6" where "6" is extremely concerned and "1" is not at all concerned, how concerned are you about the result? (CIRCLE ONE NUMBER FOR EACH STATEMENT)

	8b. Likelihood						8c. Level of Concern					
	Extremely					Not at All	Extremely					Not at All
a. People will stop creating things like movies, songs and computer programs..................................	48-6	-5	-4	-3	-2	-1	53-6	-5	-4	-3	-2	-1
b. People who do not copy will have to pay higher prices for these products.................................	49-6	-5	-4	-3	-2	-1	54-6	-5	-4	-3	-2	-1
c. Foreign countries will obtain the benefits of those creative products or technologies without having to invest in them.................................	50-6	-5	-4	-3	-2	-1	55-6	-5	-4	-3	-2	-1
d. Young people will come to believe that it is OK just to take other people's property......................	51-6	-5	-4	-3	-2	-1	56-6	-5	-4	-3	-2	-1
e. Many small companies and individuals will lose out..	52-6	-5	-4	-3	-2	-1	57-6	-5	-4	-3	-2	-1

SECTION V - RESPONSIBILITIES AND SOLUTIONS

9a. Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies(like computers or video cassette recorders)? Would you say this is: (READ AND CIRCLE ONE)

Primarily the responsibility of businesses in the information and entertainment industries......................58-1

or

Primarily the responsibility of the government............................... -2

Both (VOLUNTEERED)............................ -3

Neither (VOLUNTEERED)......................... -4

Don't Know (VOLUNTEERED)...................... -5

b. How responsible do you think a business should be for its employees' actions, when they involve copying materials for computers and so forth, that the manufacturer says should not be copied? Are they: (READ AND CIRCLE ONE)

Totally responsible.......................59-1

or

Responsible only if they made no efforts to control employee actions....... -2

or

Responsible only if they encourage employees to do it........................ -3

or

Not responsible at all (VOLUNTEERED).............................. -4

10a. I'm going to read you some ideas people have suggested to help make sure that intellectual and creative property rights are protected. As I read, please tell me to what extent you think the idea would be workable: Completely, Somewhat, Only slightly, or Not at all: (READ STATEMENTS AND CIRCLE ONE)

Solutions		Completely	Some-What	Only Slightly	Not at All
1.	New and tougher laws and regulations by government...........................	60-4	3	2	1
2.	Taxes or a surcharge on items like tape or cassettte recorders, blank tapes and so on...	61-4	3	2	1
3.	Investment in technologies like special codes that would prevent people from copying..	62-4	3	2	1
4.	Setting the price of copyable items very high so people can make their money by selling just a few............................	63-4	3	2	1
5.	Establishing a program to educate the public about what type of copying is legal and illegal....................................	64-4	3	2	1

SECTION VI - CLASSIFICATION DATA

A. Sex: (BY OBSERVATION)

Male..........65-1
Female....... -2

B. What is your age?

Under 21 years...........66-1
21 - 24 years............ -2
25 - 29 years............ -3
30 - 34 years............ -4

35 - 39 years............ -5
40 - 44 years............ -6
45 - 49 years............ -7

50 - 54 years............ -8
55 - 59 years............ -9
60 - 64 years............ -0
65 years and older....... -x

C. What is your current educational level?

Less than high school
 graduate..........................67-1
High school graduate............... -2
Some college/no degree............. -3
2-year college graduate............ -4
4-year college graduate............ -5
Postgraduate work or degree........ -6
Refused............................ -7

D. What is your occupation? (WRITE IN OCCUPATION AND THEN CLASSIFY IN ONE OF THE CATEGORIES BELOW)

____

Professional (doctor, lawyer,
 dentist, actor, pilot, etc.)...........68-1
Business executive (president or
 vice president)........................ -2
Managerial (business executives
 other than president/
 vice president......................... -3
Official (public
 administration officials).............. -4
Semiprofessional (teacher, nurse,
 paramedic, clergy, etc.)............... -5
Technical (engineer, data
 processing architect, etc.)............ -6

Owner/proprietor........................ -7
Sales (regional/district sales)......... -8
Military: commissioned officer.......... -9
Military: enlisted person............... -0
Clerical (secretary, bookkeeper,
 sales clerk, etc.)..................... -x
Foreman/craftsman (skilled worker)...... -y
Operatives, laborers, factory
 workers (semiskilled worker)...........69-1
Service (waiter, maid, etc.)............ -2
Municipal/federal employees
 (policeman, postal clerk).............. -3
Farm workers............................ -4
Other................................... -5
Housewife............................... -6
Retired................................. -7
Unemployed.............................. -8
Disabled................................ -9
Student................................. -0
Refused................................. -x

E1. Into which of these categories does your total annual household income fall before taxes? (RECORD BELOW UNDER Q. E.1)

E2. And into which category does your total annual personal income fall before taxes? (RECORD BELOW UNDER Q. E.2)

	E.1 Household	E.2 Personal
Under $12,500..............	70-1	71-1
$12,500 - 14,999...........	-2	-2
$15,000 - 19,999...........	-3	-3
$20,000 - 24,999...........	-4	-4
$25,000 - 29,999...........	-5	-5
$30,000 - 34,999...........	-6	-6
$35,000 - 39,999...........	-7	-7
$40,000 - 49,999...........	-8	-8
$50,000 - 75,000...........	-9	-9
More than $75,000..........	-0	-0
No income/not employed outside the home	-x	-x
Refused (VOLUNTEERED)......	-y	-y

F. How many children under 18 live in this household?

1................	72-1
2................	-2
3................	-3
4................	-4
5................	-5
6 or more.......	-6

G. Do you have any of the following (READ LIST) at home?

		Yes	No	Not Sure (VOL.)
READ:	Audio cassette recorder......................	73-1	-2	-3
	Video cassette recorder......................	74-1	-2	-3
	Video disc...................................	75-1	-2	-3
	Cable TV via a cable hook-up.................	76-1	-2	-3
	Satellite dish...............................	77-1	-2	-3
	Home computer that is programmable..........	78-1	-2	-3

H. One final question. Are you now or did you ever use computer programming as part of your work?

Yes...........................	79-1
No............................	-2
Don't know (VOLUNTEERED).......	-3

THANK YOU FOR YOUR HELP. 80-1

THE "INTELLECTUAL PROPERTY RIGHTS ISSUE": THE SMALL BUSINESSMAN'S PERSPECTIVE

Prepared for
The Office of Technology Assessment
United States Congress

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I. INTRODUCTION

I. INTRODUCTION

Background and Purpose

The small business community as a whole is a large scale user of intellectual property such as computer software. The Office of Technology Assessment (OTA), as part of its investigation of the issue of intellectual property rights, is interested to learn how this particular group defines its actions and responsibilities with regard to the protection of intellectual property. This study, among small business executives, builds on the research conducted by Yankelovich, Skelly and White, Inc. in 1984 on the attitudes and reported behaviors of the general public with regard to intellectual property rights.

The 1984 study among the general public concluded that the general public finds acceptable--such that they would do it--behaviors which some say infringe on intellectual property rights or which violate copyright laws. The first study also found that the public holds the business community to higher standards with respect to copyright behaviors than it does itself. Further, the public makes a very clear distinction between copying for personal use and copying for business or commercial purposes.

It is important to learn, therefore, whether, like the public, small business executives find copying behaviors acceptable or whether they believe, as does the public, that the business community has greater responsibility to protect intellectual property rights. This study of small business executives focuses on the copying of software, in particular, as an indicator of their more general attitudes toward intellectual property rights.

The study of small business executives follows the approach of the general public study. It explores views toward ownership of intellectual and creative property, the importance attributed to technology, and assessments of possible differences in ethical responsibility between small and large businesses. The study also measures attitudes about a range of specific behaviors that, by some definitions, infringe on intellectual property rights and examines how various factors are perceived to affect the appropriateness or inappropriateness of these behaviors.

In addition, emphasis is placed on understanding the reasoning behind assessments of acceptability of behaviors like copying, through a discussion of rationales and motivations. Possible ways to prevent copying and other infringements of intellectual property rights are explored with the executives in two ways. First, trade-offs--the positives and negatives of various solutions--were presented and, second, behaviors that would and would not be deterred by stronger laws were discussed.

The findings of this study are based on in-depth personal interviews with a cross section of small business executives. The sample size of 50 necessitates that the conclusions drawn be described as qualitative and, thus, descriptive rather than projectable in nature. However, YSW research into social values and life-styles, along with the quantitative study on this issue carried out among the general public, add weight to the inferences drawn.

II. METHODOLOGY

II. METHODOLOGY

This study is based on the views of a sample of 50 small business executives on the issue of intellectual property rights.

There are four principal elements of the study methodology: the sample, the questionnaire, the fieldwork and the analysis.

The Sample

The sample of small business executives was chosen in order to attain a geographic distribution across the Continental United States. The sample was also designed to provide a mix of types of industries, classified by Standard Industry Codes and a mix of sizes, as defined by number of employees and annual revenues. Over three-quarters of the sample perceived themselves to be "small business," with the remainder classifying themselves as midsized companies.

Respondents were also included in the sample only if they owned or had working access to a computer. This was done in order to find those persons whose company would be capable of copying computer software and other intellectual property and, thus, be in a position to decide whether to do so.

The Questionnaire

The questionnaire reflects a similar approach to that used for the general public as well as items written with the small

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Comparisons are made throughout the report to the findings of the general public study. These findings provide a context and, thus, a measuring rod for the results of the small business study. The general public findings also provide interesting comparative data.

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economic difficulties, small business executives emphasize nongovernmental solutions to the intellectual property rights problem. When given a choice, they prefer solutions that involve new technologies that physically prevent copying. Further, they believe that greater understanding and consistency over what is or is not permissible to copy would also address the problem.

> ...However, as is the case with the general public, this is a low salience issue and there is no real demand for solutions as yet.

5. Small business executives do not exclude themselves from the solution seeking process. Within their own companies they are willing to set rules and guidelines against conduct which violates intellectual property rights. However, they will only go as far as setting the standards. They feel they cannot and will not accept responsibility for actual enforcement of rules or laws that seek to prevent such behaviors as copying.

Implications

Based on this study, a number of implications regarding the small business perspective on the intellectual property rights problem can be drawn.

First in seeking solutions, public policy leaders must be mindful of certain realities:

1. Within a small business, certain copying behaviors, when they involve:

   A small number of copies,

   The copies remain within the company,

   The original has been purchased for use within the company

   are considered to be acceptable behaviors. As such, there will be little or no voluntary cooperation to end this sort of copying. In fact, there is an expressed attitude of "you'll have to stop me." This reality helps to define the limitations of prohibiting copying.

2. At present, in the minds of small business executives, there is a lack of consensus over what is permissible due to a perceived lack of consistency over what the rules are.

   ...This confusion, real or believed, suggests the need for education and clearer standards.

   ...Education should be targeted to specific circumstances--i.e, within the business setting. As was learned in the general public study, awareness of the problem, familiarity with technologies, and general level of education are _not_ likely to make individuals _less_ inclined to copy.

3. The small business community appears more sensitive to the problem of protecting intellectual property rights than the general public. They also say they are willing to play a role in reducing the level of copying software by setting policies and strict guidelines within their firms. What they are not willing to do is become the enforcers by policing their employees.

With these realities, what solutions to the intellectual property rights problem do these data suggest? New laws or laws with stiffer penalties could be created. However, in many instances--e.g., when copying is done in private or for personal use--the laws would be unenforceable. On the positive side, they would dramatize the seriousness of the problem, something many people say they are unaware of. Where laws could be more effective is when the copying is done for purposes of resale. Laws against this sort of copying enjoy/would enjoy strong public support.

To some extent, self-enforcement or self-regulation can be relied upon. It is clear that business is willing to play a role in promulgating guidelines and could be asked to do so to a greater extent. The difficulty is that some credibility is lost when everyone knows that people are copying for personal use. This suggests that a public education campaign might be helpful.

Finally, those concerned with policy regarding the intellectual property rights problem could take a nongovernmental or laissez-faire approach. Businesses which create intellectual property would realize they would have to rely on, and thus be motivated toward, technological and other marketplace solutions. The shortcoming of this approach, among others, is that policy and prevention would be sporadic and uneven.

IV. DETAILED FINDINGS

A. Setting the Context: Profile of the Small Businessman

In order to properly describe the small businessman's perspective on the intellectual property rights issue, it is helpful to first relate their attitudes about their own self-definitions of size and growth potential, their level of involvement with technologies like computers, and their views on the proprietary nature of information.

Self-Perception of Size and Growth

While the small business executives were chosen according to predetermined criteria, it is clear that they too define themselves as small business with:

...Seven in ten using the term "small business," and

...The balance using "midsize company."

(See Table 1)

Further, most of the executives are thinking in terms of growth with over 8 in 10 planning for either modest or extensive growth.

(See Table 2)

An important question for this study was whether the self-definition of being a small company affected attitudes about

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automated systems and services are likely to increase in the future--and almost half say they will increase a lot. It is not surprising, then, that most executives say that their automated systems and services are extremely important to their companies.

(See Tables 4-7)

There is clearly an orientation toward technology in the patterns of use just described. There is also an attitudinal predisposition, as illustrated by the fact that over 6 in 10 believe that it is very important to have the latest technology and to integrate it into the company.

(See Table 8)

Attitudes Toward the Proprietary Nature of Information

There is no question in the minds of the small business executives that intellectual property such as ideas and information is a commodity in the same way as tangible products. The executives were presented a series of statements describing the possible proprietary versus free nature of information. Almost all of these businessmen were on the side that says one should pay for information regardless of how often or under what circumstances it is used.

(See Tables 9 and 10)

It is not unexpected that, in comparison to the attitudes about the proprietary nature of information expressed by the general public, these businessmen are more sensitive to the concept of information as property. They are also more likley than the public to believe that information should be paid for.

In short, the profile of the small business executives suggest that their experiences and attitudes provide them with the wherewithal and the rationales to want to copy intellectual property like computer software. On the other hand, they are more likely to be sympathetic to arguments of property rights. Thus, the questions that arise (and that will be addressed in subsequent chapters) are:

1. To what extent are copying behaviors, indeed, found to be acceptable;

2. What differentiates those who do and do not accept copying; and,

3. What attitudes help to explain the difference.

TABLE 1

SMALL BUSINESS EXECUTIVES' SELF-DESCRIPTION OF SIZE OF COMPANY

	Total
	%
Small business	70
Midsize company	28
A fairly large company	2

Question 1: Generally speaking would you say your company is a small business, a midsize company or a fairly large company?

TABLE 2

SMALL BUSINESS EXECUTIVES' PLANS FOR GROWTH

	Total
	%
Extensive growth	18
Modest growth	66
Little or no growth	14
Not sure	2

Question 2: And what about your plans for expansion or growth? Do you foresee extensive growth, modest growth or do you not anticipate much growth at this time?

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TABLE 4

AUTOMATED SYSTEMS AND SERVICES EMPLOYED

	Total
	%
Stand-alone computers (MICROS)	$\boxed{82}$
Access to automated data bases	46
MICROS linked through a local area network	24
MICROS linked to a MINI-computer	26
A stand-alone MINI-computer	$\boxed{64}$
A service bureau	22
Time sharing	6
Other	10

Question 5: Here is a list of automated systems and services that you may or may not have in your company. Please read me the letter of the items you are currently using.

TABLE 5

FREQUENCY OF USE OF AUTOMATED SYSTEMS

	Total
	%
Constant	76
Most of the time	22
Some of the time	0
Small part of the time	2

Question 6: What would you say is the frequency or intensity of your company's use of these automated systems or services?

TABLE 6

LIKELY INCREASE IN USE OF AUTOMATED SYSTEMS AND SERVICES

	Total
	%
A lot	46
Somewhat	42
Little or no increase	12

Question 8: Is the level of use of automated systems and services in your company likely to increase a lot, somewhat, or will there be little or no increase?

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TABLE 8

PHILOSOPHY ABOUT TECHNOLOGY

		Total	
		%	
Statement A	1	36	>62%
	2	26	
	3	28	
	4	0	
Statement B	5	8	
Not sure	6	2	

Question 3a: Here are two points of view about technology. On a scale from "1" to "5," where "1" means you totally agree with Statement A and "5" means you totally agree with Statement B, where would you place your own philosophy or the philosophy of your company?

Statement A: It is important to have the latest technology and to integrate it into the workings of the company. The more technology the better.

Statement B: While I use technologies like computers, I try not to rely on them too much and don't go out of my way to use them.

TABLE 9

SOCIETY'S GOAL FOR INFORMATION

	Total
	%
Statement A Society benefits from the creation of ideas and information. Therefore, society needs to grant the right to the creators of information to control and sell their products in the marketplace.	92
Statement B Society benefits from the free flow and exchange of ideas and information. Once information is created, it should be freely available for everyone to benefit from because it requires no additional expenditures of money.	8

Question 11: I am interested in knowing what you think society's goal should be with regard to the creation and use of information. Here are two statements representing two opposite points of view and I would like you to tell me which of the two statements come closest to your own opinion.

TABLE 10

ATTITUDES ABOUT THE ROLE OF INFORMATION

	Strongly/ Mostly Agree	Strongly/ Mostly Disagree	Don't Know (VOLUNTEERED)
	%	%	%
Having whatever information I want available to me is extremely important	100	0	0
If information has been paid for once, from then on anybody should be able to use it	36	$\boxed{62}$	2
With modern technology it is too easy to become overloaded with information	72	28	0
Taping a friend's record is like stealing a record	$\boxed{64}$	34	2
If you rent a home movie, you can do anything you want with it, as long as you don't destroy it	36	$\boxed{74}$	0
Information organized in a particular way is a product like any other product	$\boxed{80}$	20	0
Once information is used it should be available to anyone who wants it	22	$\boxed{76}$	2

Question 10: I would like to read you a few statements people have made about the role of information in our society and how it is used and controlled. Using the scale on this card, for each statement, please tell me whether you strongly agree, mostly agree, mostly disagree or strongly disagree with each one.

TABLE 11

ATTITUDES ABOUT THE ROLE OF INFORMATION

	Agree	
	Small Business Executives	General Public
	%	%
Information organized in a particular way is a product like any other product	80	65
Taping a friend's record is like stealing a record	64	48
If information has been paid for once, from then on anybody should be able to use it	36	58
If you rent a home movie, you can do anything you want with it, as long as you don't destroy it	36	48

Question 10: I would like to read you a few statements people have made about the role of information in our society and how it is used and controlled. Using the scale on this card, for each statement, please tell me whether you strongly agree, mostly agree, mostly disagree or strongly disagree with each one.

B. Awareness of and Sensitivity to the Intellectual Property Rights Issue

B. Awareness of and Sensitivity to the Intellectual Property Rights Issue

The issue of intellectual property rights and the need to protect intellectual and creative efforts is something that small business executives say they are familiar with. After a discussion of the issue in terms of specific behavioral examples, followed by a brief definition, about 6 in 10 of the executives say they are very or moderately familiar with the intellectual property rights issue. This stands in clear contrast to the general public among whom just 3 in 10 say they are familiar with the issue.

At the moment, small business executives do not feel that their particular companies are affected by the issue--most say "not at all."

...However, 7 in 10 believe that the issue will somehow affect them in the future. The fact that the executives do not identify with the issue, but predict that it will affect them in the future, parallels the views of the general public for whom this is also a low salience issue at the present time.

(See Tables 12-14)

Importance of Copyright Laws

The executives interviewed are, at least to some extent, familiar with copyright laws.

...Over half say they are very or moderately familiar with them.

Not only are small business executives familiar with these laws, but half say that the laws affect their company in some way. The executives' definitions of "affect" vary, but generally suggest either:

...That their companies produce products that are protected by copyright, trademark or patent laws.

...Or, to a very limited extent, that the laws set restrictions on what they themselves can copy.

The fact that only 13% say that their companies are limited by copyright laws supports this. Indeed, most have very positive feelings toward copyright laws and feel their businesses are protected by them.

(See Tables 15-17)

Concern Over Consequences of Inadequate Safeguards

The executives were presented with a list of possible consequences that might result from infringements of intellectual property rights.

Most executives thought that almost all of the consequences named were likely. The consequences included legal/financial implications as well as reductions in creative efforts, research and development and the lack of control over one's products.

Most executives believe these consequences are very likely and over 6 in 10 say they are concerned about almost all of the listed consequences.

...The consequence that generates the most concern involves the inadequate funding of research and development for new and creative products.

As was shown in the previous chapter, small business executives express a high degree of interest in new technologies. It is not surprising, therefore, that their concerns reflect the desire to ensure new technologies for the future.

(See Table 18)

TABLE 12

FAMILIARITY WITH THE INTELLECTUAL PROPERTY RIGHTS ISSUE

	Small Business-men	General Public
	%	%
Very/moderately familiar	58	29
Only slightly familiar	32	39
Not at all familiar	10	32

Question 14: A number of the actions we were talking about earlier, like copying, are now being discussed in Congress and in the courts. The issue, sometimes referred to as intellectual property rights, concerns the rights individuals and businesses have to protect their intellectual or creative efforts so that they can control or sell them as they see fit. Would you say you were:

TABLE 13

EXTENT TO WHICH THE INTELLECTUAL PROPERTY RIGHTS ISSUE HAS AFFECTED THEIR COMPANY

	Small Business Executives	General Public
	%	%
A great deal	8	6
A little	30	26
Not at all	56	67
Not sure	6	1

Question 15: Is this an issue that has affected your company?

TABLE 14

EXTENT TO WHICH THE INTELLECTUAL PROPERTY RIGHTS ISSUE WILL AFFECT THEIR COMPANY IN THE FUTURE

	Small Business Executives	General Public
	%	%
A lot	28	22
A little	42	41
Not at all	30	31
Not sure	-	6

Question 16a: Is this an issue you think might affect your company in the future?

TABLE 15

FAMILIARITY WITH COPYRIGHT LAWS

	Total
	%
Very familiar	4
Moderately familiar	48
Only slightly familiar	40
Not at all familiar	8

Question 16b: How familiar would you say you are with copyright laws?

TABLE 16

EFFECT OF COPYRIGHT LAWS ON RESPONDENTS' COMPANIES

(Among those who are familiar with copyright laws)

	Total
	%
Copyright laws affect company	52
Copyright laws do not affect company	44
Not sure	4

Question 17a: Do copyright laws affect your company?

TABLE 17

PERCEPTIONS OF COPYRIGHT LAWS LIMITING OWN COMPANY'S ACTIVITIES

(Among those who are familiar with copyright laws)

	Total
	%
Copyright laws limit company's activities	13
Copyright laws do not limit company's activities	87

Question 18a: Do you feel copyright laws limit your company in any way?

TABLE 18

LIKELIHOOD OF AND CONCERN ABOUT CONSEQUENCES OF NOT HAVING FURTHER PROTECTIONS OF INTELLECTUAL PROPERTY

	Likely[1]	Concerned[1]
	%	%
A lot of time and money will be spent going to court	84	66
People who do not copy will pay higher prices	80	62
People will stop putting money into R&D for new and creative products	74	$\boxed{76}$
Foreign countries will obtain the benefits of new technologies without having to invest in them	74	56
Young people will come to believe that it is OK to take other people's property	72	70
People will no longer have control over the things they produce	66	66
Many small companies will get hurt	62	56
Few people think there is a problem	58	60
A lot of companies will go out of business	58	54
Entertainment products will only be available to those who can afford to pay	46	40

[1] Highest 3 points on a 6-point scale.

Question 20a: These statements reflect what some people say the likely results of not safeguarding this kind of property would be. For each statement on this card, using the scale from "1" to "6" where "6" is extremely likely and "1" is not at all likely, please tell me how likely you think the result would be. You may just read the letter of the statement and the number on the scale.

Question 20b: I would like you to read these statements again, but this time I would like you to tell me how concerned you are about each one. Again using a scale from "1" to "6" where "6" is extremely concerned and "1" is not at all concerned, how concerned are you about the result?

C. Willingness to Respect Intellectual Property Rights

C. Willingness to Respect Intellectual Property Rights

In the previous two chapters, it was shown that small business executives use and emphasize the importance of the latest technologies. This, one could argue would lead to the desire to own, and thus perhaps obtain through copying, the latest in products such as computer software. On the other side, it is also clear that they possess an ideology that favors respect for property, preserving the ability to own intellectual property, knowledge of the issue and its ramifications, and a personal stake in copyright laws. Taken together this should predispose executives to believe copying is wrong and, therefore, not to copy. This chapter presents what executives perceive to be acceptable when it comes to copying and their reasons why.

Acceptability of Copying

When asked directly how their companies obtain their computer programs, less than 1 in 7 mentions copying. Executives were given nine examples of behaviors that by some definitions violate intellectual property rights. For each example, they were asked whether, in their opinion, the behavior was acceptable to them such that it was something they would be willing to do.

The examples involve use of present day technologies to either copy, intercept or otherwise obtain information or entertainment without compensating the owners of the rights to the intellectual property. Small business executives divide the specific examples into three groups, in that:

...Small business executives do not find it acceptable to copy (i.e., convert to your own use) information that was obtained under one set of circumstances (renting, borrowing) and then use it without permission in a different way.

...Less than half of the executives find the copying and trading of products (programs, records, etc.) among friends acceptable after the initial purchases.

...The major exception that the executives make is when a "small company" copies a piece of software it has already purchased for its own use.

In comparison to the general public, small business executives find copying behaviors less acceptable. Whereas a majority of the public find trading and copying computer programs and records acceptable, a majority of the executives finds them unacceptable.

Reasons Given

Three of the specific behaviors provided as examples referred to activities that businesses might engage in. Reasons given for the acceptability or unacceptability of those behaviors illustrate the distinctions that the executives make among the examples.

For the situation in which a small company copies a piece of software to use on a second computer, the executives found this acceptable (74%) for the following reasons:

...It has been paid for once;

...The rights to use it are purchased, not the individual copies;

...It is being done for the same company;

...Unless instructed otherwise, it is permissable.

Small business executives do make a distinction--in the situation in which a larger corporation is making multiple copies--between large and small companies and the number of copies made. While the majority believe this sort of copying to be wrong, the following were reasons given for acceptability.

...If it is done by the same company;

...It depends on the extent of the copying.

Small business executives do not find copying acceptable if the item (software) copied was not purchased in the first place--when it is not paid for by the company doing the copying. It appears that--in their minds--a minimum amount of compensation is required.

(See Tables 19-29)

Additional Factors Influencing Acceptability

Small business executives were also asked whether various factors would influence their thinking on the acceptability or nonacceptability of certain examples. The examples are:

1. Making a second copy of software for use within the company for another computer.

2. The borrowing of software by one company from another and then tailoring the system to the needs of the company.

3. The copying of information obtained from the renting of an automated data base.

In the first example, the cost of the software, the number of copies made and the fact that an employee did the copying made no difference to their rating of general acceptability. In fact, 3 in 10 said that if the copying was done by the owner for personal use, the copying was more acceptable.

In the second example, the fact that the computer system could no longer be purchased made copying acceptable to about two-thirds of the sample. On the other hand, if the copied and tailored system was sold to others without permission, over 7 in 10 said this would make it less acceptable.

In the third example about copying of information, both the fact that the information is proprietary and the resale of the information would make the copying of information less acceptable. The notion of sale or resale appears to be one of the most important delineators between what is acceptable and unacceptable behavior.

(See Tables 25-27)

The Major Exception

One behavior--the copying of software in-house, in small quantities after purchase of the software--is seen as acceptable to most small business executives. This can be explained, to a large extent, by the background and attitudes of the executives themselves.

Executives are more likely to think this sort of copying is acceptable if (a) they also believe that copying of other products is acceptable or (b) if they believe that small companies are different from large companies in terms of their legal and regulatory restraints.

Executives are less likely to think this sort of copying is acceptable if they place heavy emphasis on technology and the ensuring of future technologies and if they believe that copyright laws are of benefit in protecting their own products; thus, their attitudes are laced with a certain degree of self-interest.

(See Tables 25 and 26)

TABLE 19

WAY AUTOMATED PROGRAMS ARE OBTAINED

	How Common			
	Very	Some-what	Not At All	Don't Know
	%	%	%	%
Renting	12	14	68	6
Sharing	4	8	80	8
Borrowing	0	8	82	10
Purchasing	86	10	4	0
Copying	2	14	70	14

Question 9b: Here are some ways to obtain automated programs and information. For each one would you tell me whether, as a method for your operations, it is very common, somewhat common or not at all common:

TABLE 20

BEHAVIORS DEEMED ACCEPTABLE

	Generally Acceptable[1]
	%
A small company buys a piece of software and makes a copy	74
Trading computer programs with friends for your own computer use	44
A large corporation lets its employees copy computer program instead of buying multiple copies	44
Receiving broadcast signals without buying the satellite service	42
Renting automated data bases and copying information	40
Recording your own records and trading them with your friends	38
Copying video cassettes that are rented from a store	20
A small company borrows and copies an automated system and tailors it to its needs	20
Getting into someone else's data bank to look at the data	0

[1] Top 3 points on a 6-point scale.

Question 12: I am going to read to you a series of actions that people feel very differently about. As I read each one, please look at the scale on this card and tell me to what extent it is acceptable in your opinion. I would like you to respond using a scale from "1" to "6" where 6 means the action is perfectly acceptable in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the actions to be.

TABLE 21

A COMPARISON OF BEHAVIORS DEEMED ACCEPTABLE TO SMALL BUSINESS EXECUTIVES AND THE GENERAL PUBLIC

	Small Business Executives	General Public
	%	%
Trading computer programs with friends for your own computer use	44	61
Receiving broadcast signals without buying the satellite service	42	44
Recording your own records and trading them with your friends	38	52
Getting into someone else's data bank to look at the data	0	2

Question 12: I am going to read to you a series of actions that people feel very differently about. As I read each one, please look at the scale on this card and tell me to what extent it is acceptable in your opinion. I would like you to respond using a scale from "1" to "6" where 6 means the action is perfectly acceptable in your opinion and where 1 means the action is "not at all acceptable." Of course you may rate them anywhere in between "1" and "6." Remember the higher the number the more acceptable you feel the actions to be.

TABLE 22

VERBATIMS

Situation: A small company copies a piece of software for a second personal computer.

Acceptable (74%)

"They have paid for it. They are using it and not disseminating it to anyone else who hasn't paid for it."

"They have already purchased the rights for the software and only they would be viewing the copies which they have already seen."

"They bought it to use...no difference which machine it is used on, as long as it is in their possession. If they owned 20 to 30 machines and copies, then it would be wrong."

"The company is not buying individual programs; it is buying the right to use the software. (It is like listening to the same record twice--you don't have to buy two records.)"

"You bought it!"

"Depends on agreement with the supplier. If not spelled out, you can do it."

"One always makes backup copies in case of loss."

TABLE 23

VERBATIMS

Situation: A large corporation lets its employees copy a computer program instead of buying multiple copies.

Acceptable (44%)

"If it's just a few employees...but if it's General Motors letting 70,000 employees do it, it is not okay."

"If it's only used internally."

"The corporation paid for it--so it's okay...helpful to employees in learning to use and work with computers."

"Manufacturers of programs should anticipate this problem in the pricing."

"A company should only have to pay once."

Not Acceptable (52%)

"Large companies are different from small companies in that they are more responsible."

"Company is denying vendor additional sales of product..."

"It is stealing."

"It is unethical."

"It is okay to copy, but should buy more copies."

"Should purchase multiple copies regardless of company's size."

TABLE 24

VERBATIMS

Situation: A small company borrows, copies and tailors an automated system.

Not Acceptable (80%)

"Purchaser of system has no right to lend out...lost revenue to original seller...could be put out of business."

"Changes simply suit own needs...should see someone compensated."

"Have not paid for it."

"It is not theirs to lend to an outside party."

"Rationalized by fact that it is tailored...but it is still stealing from basic program."

TABLE 25

FACTORS THAT WOULD MAKE COPYING AN ACCOUNTING PACKAGE MORE OR LESS ACCEPTABLE

	More	Less	No Difference
	%	%	%
The accounting software package costs a great deal of money	14	4	82
The company was a large firm and they made 50 copies	6	28	66
The copying was done by an employee	6	38	56
The copying was done by the owner for his own personal use on his home computer	30	28	42

Question 13: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

TABLE 26

FACTORS THAT WOULD MAKE COPYING AND TAILORING ANOTHER COMPANY'S SYSTEM MORE OR LESS ACCEPTABLE

	More	Less	No Difference
	%	%	%
The system can no longer be purchased anywhere else	$\boxed{64}$	8	28
The system cost very little to design and create	12	16	72
The owner of the company ordered that it be done as a cost-cutting measure	8	28	64
The tailored system was sold to other companies	4	$\boxed{72}$	24

Question 13: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

TABLE 27

FACTORS THAT WOULD MAKE COPYING INFORMATION FROM AUTOMATED DATA BASES MORE OR LESS ACCEPTABLE

	More	Less	No Difference
	%	%	%
The information is automated information	4	16	78
The information is proprietary in nature	8	62	30
The employees only copy small amounts of information	10	16	74
The employees take the information and repackage it for sale	4	88	8

Question 13: Next I am going to describe a couple of situations to you. Then after each one I am going to alter the situation slightly. As I do so, I would like you to tell me whether the change makes the action more acceptable, less acceptable or makes no difference.

TABLE 28

ACCEPTABILITY OF A SMALL COMPANY BUYING A PIECE OF SOFTWARE AND COPYING IT FOR INTERNAL USE

	Very Acceptable to Do[1/]
	%
Technology	
Need to have the latest technology	55
Do not need to have the latest	77
Perceptions of Small Companies	
They are different from large	72
They are not different	57
Trading Cassettes	
Acceptable behavior	75
Not acceptable behavior	49
Trading Software	
Acceptable behavior	77
Not acceptable behavior	50

[1/] Highest 2 points on a 6-point scale.

TABLE 29

THE IMPACT OF PERCEPTIONS OF COPYRIGHT LAWS ON THE COPYING OF SOFTWARE

(Among those who are familiar with copyright laws)

	Copying of Software Within Company	
	Okay	Not Okay
	%	%
Do Copyright Laws Affect Their Company?		
Yes	45	69
No	52	23
Not sure	3	8

D. Directions for Solutions

D. Directions for Solutions

The analysis and discussion in the previous chapters has shown that small business executives--by virtue of who they are--are more sympathetic to the concept and preservation of intellectual property rights than is the public in general. At the same time, they find copying acceptable when it is done in-house or when it suits their business needs. With this reality, what solutions are workable or recommended by this group of users of intellectual property?

This chapter addresses the primary focus of this research: (1) an exploration of possible solutions including the passing of new laws, (2) a discussion of what may or may not be effective, and (3) the willingness of the small business executives to participate in solutions.

Consideration of Specific Solutions

Small business executives were provided with a series of suggested solutions combined with possible negative repercussions of those solutions. Each executive assessed these "trade-offs" in terms of what they thought to be appropriate solutions to the intellectual property rights problem. The trade-offs include possible approaches such as stepped-up law enforcement, stiffer laws, tax and pricing policies and reliance on new technologies.

...The only approach that a majority of the small business executives thinks appropriate is the reliance on new technologies.

...The technology approach is seen as appropriate even if it means that prices will increase or the technologies would be more difficult to use.

Eight out of ten executives believe additional protections for intellectual property are likely and just under half believe they are _very_ likely. This does not imply, however, that protections are seen as "necessary." While the executives may be _predicting_ additional protections, only 3 in 10 say such protection is _very_ necessary. At the same time, over half believe that protections are somewhat necessary.

(See Tables 30-32)

The Workability of Legal Remedies

Small business executives believe that stronger laws would prevent _some_ copying under certain circumstances.

...About half believe that it is very or moderately likely that stronger laws would prevent a large corporation from making multiple copies to distribute among their employees.

...Half also believe that it is very or moderately likely that stronger laws would prevent companies from borrowing and copying software.

The executives explain that stronger laws would act as a a deterrent either through fear, assessment of cost benefits or just simply that many companies would be unwilling to break the law. They also think new laws would have a secondary benefit of creating awareness about what is and is not permissible.

Where stiffer laws would not be effective, according to small business executives, is when small companies make in-house copies. And this is the one practice that is most closely associated with what they actually might do. The reasons executives give for their assessment that laws would not be effective include:

...A belief that when one purchases a product like software, one purchases the right to use that product; and

...An attitude that the practice is already widely accepted.

In addition, executives think of legal solutions primarily in terms of detection and enforcement and come to the conclusion that legal solutions are not practical. They believe that people don't think they will get "caught," and even if they were to get "caught," it would be a very hard fact to prove.

(See Tables 33-36)

Involvement of Business in Finding Solutions

Like the general public, small businessmen view the intellectual property rights problem as primarily business' problem--i.e., businesses who create intellectual property should find the solutions. (This is consistent with their belief that technological solutions are most workable.)

...Over half of the business executives are of the opinion that the primary responsibility for solving the problem rests with the businesses in the information and entertainment industries.

...Fewer than 1 in 5 think that the primary responsibility rests with government.

...One in four believe both have responsibility.

This is not to suggest that small business executives feel no responsibility themselves. Quite the contrary. Over 8 in 10 say that businesses who are users of intellectual property should take some constructive responsibility for their employees actions.

...Over 2 in 10 believe they should take total responsibility.

...And 6 in 10 believe they should be responsible if they make no efforts to control their exployees' actions.

The sorts of actions that they would be willing to take include setting company policies and rules against copying and ensuring that their employees understand what is wrong and why. What they fear, however, is being completely responsible for their employees' actions. They do not want to be in a position to police what they believe they cannot ultimately control.

(See Tables 37-39)

TABLE 30

TRADE-OFFS CONCERNING SOLUTIONS TO THE INTELLECTUAL PROPERTY RIGHTS ISSUE

	Strongly/ Mostly Agree
	%
Investing in technologies to prevent copying is worth price increases	68
Use advanced new technologies to prevent copying even if it leads to inconvenience to some users	52
Spend more money on law enforcement to catch copyright law violators	34
New laws and regulations by government even with loss of privacy	30
Special tax on items like VCR's, etc., even with higher costs	24
Creators should charge a great deal even if the items are less accessible	22
Don't try to protect intellectual property because there is little we can do	16

Question 25: People have different views about the appropriate solutions to the intellectual property rights issue. For each statement on this card, I would like you to tell me whether you strongly agree, mostly agree, mostly disagree or strongly disagree.

TABLE 31

LIKELIHOOD OF ADDITIONAL PROTECTIONS FOR INTELLECTUAL PROPERTY RIGHTS

	Total
	%
Very likely	46
Somewhat likely	36
Not at all likely	18

Question 22: How likely do you think it is that some sort of additional protections will be established?

TABLE 32

ATTITUDES TOWARD ADDITIONAL PROTECTIONS FOR INTELLECTUAL PROPERTY RIGHTS

	Total
	%
Very necessary	30
Somewhat necessary	56
Not at all necessary	14

Question 21: With the development of computers and home entertainment systems like video casette recorders, there is discussion over whether additional protection of intellectual and creative property is necessary. Would you say the protection is:

TABLE 33

LIKELIHOOD THAT STRONGER LAWS WOULD PREVENT COPYING

	Likelihood		
	Very/ Moderately	Somewhat	Not At All
100% →	%	%	%
A large corporation makes multiple copies and distributes them among its employees	48	24	28
A small service firm copies an accounting package for use on a second computer	18	22	$\boxed{60}$
A company borrows and copies an automated system and tailors it to its own needs	50	28	22

Note: This table is percentaged horizontally.

Question 26: I am going to describe three situations to you. As I read each one, using the scale on this card, please tell me what you think the likelihood is that stronger laws and penalties would prevent this sort of copying.

TABLE 34

VERBATIMS

Situation: Effectiveness of laws against large companies making multiple copies.

Laws Would Be Effective

"Increase in penalties would cause corporations to reconsider risk of violations."

"The minute a law is on the books, it creates a fear factor within companies--more likely to prevent...if law is there."

"Company is going to assess its ability and avoid being caught."

"Large companies do not willingly break laws--not most of them."

Laws Would Not Be Effective

"No enforcement to prevent it. If you buy it, you can use it as you see fit."

"Already a federal offense--so what?"

"Do not feel it would be enforceable...it would be done surreptitiously and no one would even know."

"Philosophy is that they bought it and can use it internally any way they wish."

TABLE 35

VERBATIMS

Situation: Effectiveness of laws against a small company buying software and copying it for a second computer.

Laws Would Not Be Effective

"Once you have purchased it, you should be able to use it within the same company."

"Think they have bought the right to use it...new stronger laws won't make any difference."

"Smaller businesses think it is perfectly all right...some vendors already allow you to do it--others don't."

"No matter what the law--copying for another machine is widely accepted."

"People don't imagine that they would be caught."

"No one would even know--unenforceable--and to do whatever it would take to enforce it...there would be far greater costs than benefits."

"Very difficult to detect."

TABLE 36

VERBATIMS

Situation: Enforcement of laws against a small company borrowing, copying and tailoring.

Laws Would Be Effective

"If laws were clear and explained exactly what would be criminal."

"If penalties were stiffer, companies would think twice about it."

"This [situation] is not as accepted now so the laws and penalties will have more effect. People's personal views are more important as far as what is acceptable than laws and penalties."

"Would lead to more awareness."

Laws Would Not Be Effective

"Key is that if it is being modified, it is hard to tell if it has been copied."

"If you're going to steal a program, the law won't make any difference. Can't put people in jail for that."

"Hard to track down between two friendly companies."

"More of an ethical question than a legal one. Laws cannot dictate ethics."

TABLE 37

PRIMARY RESPONSIBILITY FOR SOLVING PROBLEMS RELATED TO INTELLECTUAL PROPERTY RIGHTS

	Small Business-men	General Public
	%	%
Primarily the responsibility of businesses in the information and entertainment industries	56	54
Primarily the responsibility of the government	18	34
Both	24	8
Neither	0	1
Not sure	2	5

Question 23: Thinking about this issue of intellectual or creative property, who would you say should have primary responsibility for solving any problems created by new technologies (like computers or video cassette recorders)? Would you say this is:

TABLE 38

LEVEL OF RESPONSIBILITY OF BUSINESS FOR THEIR EMPLOYEES' ACTIONS

	Small Business-men	General Public
	%	%
Totally responsible	22	32
Responsible only if they made no efforts to control employee actions	60	43
Responsible only if they encourage employees to do it	14	21
Not responsible at all	4	3
Not sure	-	1

Question 24: How responsible do you think a business should be for its employees' actions, when they involve copying materials for computers and so forth, that the manufacturer says should not be copied? Are they:

TABLE 39

VERBATIMS

How responsible should business be for their employees' actions?

Should Be Responsible

"Have to make sure their employees understand that copying software...would be subject to terminations...and possibly prosecution."

"Company is setting the standards about what is right and wrong."

"Business is always responsible for what employees do in the line of business."

"Unfair to hold them totally responsible, but should, to some extent, have some control over [them]."

"A company that purchases a proprietary product has obligation to inform employees."

Should Not Be Responsible

"If policy is clear, then departure from policy is employee's decision."

"Employees should know information is proprietary and know they are responsible for it."

"Cannot control employees' actions completely. If they have been instructed...your responsibilities have been fulfilled."

"Think that it is impossible to totally stop it...not realistic...company should put in minimum protection and controls."

"If employee is copying and company doesn't know it, how can the company be responsible? That is not reasonable."

PUBLIC ATTITUDES AND THE ENFORCEABILITY OF LAW

PETRA T. SHATTUCK

This contractor document was prepared by an outside contractor as an input to an ongoing OTA assessment. It does not necessarily reflect the analytical findings of OTA, the Advisory Panel, or the Technology Assessment Board.

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Public Attitudes and the Enforceability of Law

The special characteristics of new communication and information technologies distinguish them from traditional intellectual property. Computer programs, for example, are not only available in what appear to be infinite numbers but they can also be copied without difficulty, at minimal additional cost, in a matter of seconds and in complete privacy. Two distinct additional aspects of technological intellectual property are its lack of concreteness--its "non-materiality"--and the corollary absence of clear legal boundary lines defining the point of origin of the new property right and its point of termination.

There is no doubt that these special characteristics will affect the development of law and policy in intellectual property rights. Increased availability and the ease with which technological information and prodcuts can be copied may undermine the legal mechanisms by which intellectual property rights have until now been enforced. Changes in pubic attitudes toward protection of technological property will influence compliance and enforcement: Public support for intellectual property law and restrictions imposed on its use is essential for voluntary compliance with legal rules defining rights and responsibilities attached to technological property. Degree and rate of compliance determine enforceability. The nature of enforcement methods, in turn, may reinforce or detract from societal support for the substantive goals of legislation. From this perspective analysis and evaluation of the relation between public attitudes and intellectual property must be considered a crucial factor in formulating new laws for the proection of technological property. In addition it is important to assess what kind of enforcement policies such new laws demand and to what extent such enforcement may conflict with established legal guarantees and existing expectations of privacy.

Historical and current case studies offer examples of how the enforcement of particular legal rules was affected by public attitudes.Such case studies provide material to understand more fully the nature of the relationship between public acceptance and enforceability on the one hand and the feedback impact of enforcement strategies on societal support on the other hand.

On few points in the longstanding debate over the "rule of law" is there greater consensus than on the close and necessary relation between societal support for a system of law and the effectiveness of such a legal system in regulating conduct. The viability of the legal order of a free society cannot rest solely on applications or threats of force by authorities. It must rest on a people's sense of the legitimacy of the rule-making institutions and of the rules these institutions make.[1] At a minimum that sense of legitimacy must be nurtured by adoption of laws which serve a rational public purpose and are enforced by acceptable means. "To maintain social order,"the National Commission on the Causes and Prevention of Violence declared,"the law must be rational, wise and reasonably consensual." [2]

No matter how much scholars, practioners and public opinion experts may disagree over just how much public support exists for a particular legal measure, they do agree on the propositin that enforcement of laws not regarded as essential or legitimate is difficult as well as costly and has negative consequences far beyond non-compliance with a particular law.

The most commonly identified concerns are that adoption of laws significantly at variance with the public sense of right and wrong invariably leads to unequal law enforcement, constitutes a drain on scarce resources necessary to control seriously harmful social conduct and undermines general respect for law. Implicit in this linkage between societal support and enforcement problems is the assumption that non-compliance will increase in direct proportion to the lack of public support. Less compliance, in turn, strains law enforcement resources to the point where enforcement becomes non-systematic and unequal, thereby confirming the perception of the illegitimacy of such laws. If under such circumstances--to paraphrase Packer--the notion becomes widespread that being convicted of violating the law is no worse than coming down with a bad cold the ends of legal sanctions are disserviced.[3] The existence of such a spiral of negative consequences confirms the fundamental American belief in the direct relationship of consent and compliance.

Historical Examples

American legal history holds ample evidence establishing a firm nexus between societal support and enforceability. The failure of prohibition, the evolution of legislation penalizing marijuana use and the movement for the decriminalization of so-called victimless crimes illustrate problems which arise when law and social values are in disharmony. Reliance on voluntary compliance in tax policy on the other hand is an example of an enforcment scheme that is effective despite a growing measure of tax payer avoidance.

The repeal of prohibition probably constitutes the most open admission of governmental inability to enforce legal sanctions in the face of pervasive and widespread popular resistance.[4] Reduction of penalties and/or decriminalization of the use and possession of marijuana in the course of the last decade are examples of affirmative legislative responses to changes in public support.When growing public doubt undermined the public health law rationale of the marijuana laws Congress and state legislatures acted to reduce or abolish then existing legal sanctions.[5] Decriminalization of victimless crimes, e.g. voluntary and consensual sexual conduct in private or gambling, is advocated on two separate grounds. One is that the moral values which once informed the passage of these laws are today anachronistic. The other is that enforcement policies are as ineffective as they are costly and that they tend to discredit law enforcement personnel and institutions.[6] By contrast the experience of the Internal Revenue Service (IRS) in enforcing the tax laws provides an example of the relation of extensive compliance to largely effective enforcement.[7]

PROHIBITION

National prohibition was the law of the land for nearly fourteen years, from January 29, 1920 to December 5, 1933. With the adoption of the Eighteenth Amendment and the passage of the National Prohibition or Volstead Act under its authority the consumption, possession, trade and production of alcoholic beverages were banned. There is little doubt that prohibition laws were driven by a well-organized grass roots movement and originally had powerful nation-wide support.The Amendment could not have been passed without it. Yet problems of compliance with the Eighteenth Amendment and its corollary state and federal enforcement laws became one of the major causes for repeal.[8]

In light of the widespread and deeply committed--even zealous--support for prohibition it is all the more surprising that pressure for repeal began to materialize so quickly.[9] Part of the explanation for the eventual national disillusionment may well lie in the frank assessment of one of the prominent anti-prohibition lawyers who predicted that the "altruism" ("those who drink and can restrain themselves would like to help those who can't") which drove the adoption of the Amendment "would wash off very quickly. Nothing dies so fast as self-imposed virtue."[10] Another and more significant explanation of the failure of prohibition is, however, that problems of compliance and enforcement became one of the most important reasons for its collapse. Potent pressures for repeal derived from growing awareness of the corrupting effect prohibition enforcement had on police and law enforcement.

Prohibition also put an enormous burden on judicial institutions. The courts were flooded with thousands of cases challenging enforcement actions and methods.[11] The Supreme Court was forced to deal with complex procedural issues of search and seizure which surfaced in the context of endless numbers of raids and searches of suspected bootleggers. Corruption and denial of due process became issues in cases where municipalities set up special courts to try prohibition violations before town officials who stood to gain monetarily from conviction.[12] Cases like these made clear the costs of a movement that insisted on using government to make people behave according to its moral interests.

One of the first legal groups to organize for repeal of the Eighteenth Amendment, the Voluntary Committee of Lawyers in New York, reflected the growing concern and unease of established interests over the destructive side effects of prohibition enforcement. Their charter pointed out that the "attempt to enforce them [Eighteenth Amendment and the Volstead Act] has been productive of such evils and abuses as...disrespect for law, obstruction of the due administration of justice, corruption of public officials, abuse of legal process, resort by the government to improper and illegal acts in the procurement of evidence."[13]

How pervasive the concern over the lawlessness of the enforcement process had become was indicated by the report of the National Commission on Law Obervance and Enforcement, the Wickersham Commission, appointed by President Hoover in 1929. Although the Commission did not endorse the idea of repeal,[14] its Report on the Enforcement of the Prohibition Laws of the United States provided enough facts to support the conclusion of anti-prohibition forces that prohbition "was unenforceable because it had not the support of law-abiding citizens, that it tends to increase crime and corruption, and that it impairs the due administration of justice and causes disrespect for law."[15]

MARIJUANA LAWS

The first laws prohibiting the consumption, possession and sale of marijuana were passed by several states in 1914 and 1915. During this period marijuana was used primarily by minority groups--Blacks and Hispanics--and it had not been assimilated into the culture of majority groups in the same way that alcohol and tobacco had. The first federal legislation enacted in 1937 as the Marijuana Tax Act was justified primarily by reference to the danger of marijuana smoking to public health. The strongest proponent of the Act was the Federal Bureau of Narcotics which presented marijuana as a drug that induced insanity, addiction and criminal behaviour. Between 1930 and 1960 marijuana penalties became increasingly severe.[16]

In the 1960s and 70s, however, marijuana became a drug widely used by the middle class, in particular middle class youth. While a 1967 poll found that "only" one out of twenty students had ever used marijuana, a 1975 poll showed that more than ten out of twenty (or more than 55%) had used marijuana. "Within seven years what was once clearly statistically deviant behaviour had become the norm for this age group."[17] By 1977 twenty-two percent of the U.S. population over the age of twelve had used marijuana at least once.

With this rapid escalation in personal use and possession of marijuana concern over the validity and efficacy of then current laws increased. By 1973 the presidentially apointed National

Commission on Marijuana and Drug Abuse recommended the elimination of penalties for simple possession and distribution of small amounts of the drug.[18] The Commission on Uniform State Laws concurred and numerous other groups, among them the ABA and the AMA, advocated some form of penalty reduction. In 1973 Oregon was the first state to decriminalize marijuana and within three years eight additional states had changed the penalty provisions for the use and possession of marijuana. In response to widespread public opposition President Carter announced that he, too, was in favor of decriminalization of small amounts.[19]

Increasing doubt over the validity of medical evidence of the detrimental health consequences of marijuana was responsible for much of the opposition to retention of marijuana laws.

Yet another powerful reason driving efforts for decriminalization was the conviction that the most serious costs of the marijuana laws were those which resulted from the way the laws were enforced.[20] Studies of police practices in enforcing marijuana laws led many to the conclusion that any attempt to deal with marijuana through the criminal process must require police to resort to techniques which approach the limits of constitutional guarantees and which conflict most strongly with the values of privacy and individual dignity. Salient on the list of the most frequently described methods used by police are reliance on informers and undercover agents, intrusive surveillance and unlawful searches and seizures, selective enforcement and harrassment as well as police perjury.[21]

MORALS LAWS and VICTIMLESS CRIMES

The movement for the decriminalization of certain morals and sexual conduct now subject to penalties is based on the premise that the misuse of criminal sanction in this context contributes to disrespect for law, leads to patterns of discriminatory enforcement and draws resources away from efforts to control more serious misconduct. The debate over the legitimacy or utility of using law to ban certain morals conduct thus echoes the familiar arguments of the prohibition repeal and marijuana decriminalization movements.[22]

At stake are morals and nuisance statutes imposing sanctions on certain forms of sexual conduct, drunkeness or gambling. The common characteristics of these kinds of conduct are that there is no "victim" in the usual sense of the word. Neither is there a complainant because participants in what is classified as the offense are willing and voluntary.

The strength of public support or opposition to such morals and nuisance laws is difficult to assess. While large segments of society regard the prohibited conduct as undesirable and blameworthy, others do not consider the prohibited conduct as offensive or wrong per se. The latter group believe that the evils of prostitution or gambling, for example, result more from their illegality than from their inherent harmfulness. Few consider the conduct socially threatening.[23]

Yet despite the diversity of views about the legitimate reach of morals legislation there is a growing consensus that such conduct--however wrong morally--should not be dealt with through criminal law. The reasons for that conclusion are, again, the high costs of enforcement. Among those costs the destructive impact of law enforcement methods considered unsavory by most ranks high. When police officers must loiter where prostitutes ply their trade, make deals with pimps and gamblers and pay their tainted informants the credibility and authority of law enforcement institutions suffers. Corruption easily follows.[24]

While the resources devoted to enforcement of laws against immorality or drunkeness or gambling cannot be easily measured, it is clear that they consume a significant amount of police time and effort. Arrests for drunkeness do not absorb much patrol time, but the harrassment and arrest of prostitutes and the pursuit of petty gambling offenders consume a good deal of patrol and detective time. In addition the processing of arrests takes the time of court personnel, judges and prosecutors.[25]

Another reason for the revision of morals laws is that the irregularity and randomness of enforcement of some of these laws undermines any deterrent value they might have. Thus laws like those against consensual sexual intercourse outside marriage or adultery are rarely -- if ever -- enforced and are, therefore, not seen as prohibitions seriously intended to be followed. The treatment of gambling as a crime when engaged in at home or in the street but as acceptable and tolerable at the race track creates credibility problems.

TAX LAWS

Where the lack of societal support for morals laws is seen as one of the causes of substantial enforcement problems, the existence of public support -- albeit grudging -- for the tax laws is regarded as one of the reasons for the general efficacy of the tax system. Increases in non-compliance in the form of tax protest, evasion or avoidance during the last decade has raised questions, however, about the causes of decreasing societal support and its impact on enforcement.[26]

Explanations of non-compliance range from complexity of the tax law to perceptions that the law is unfair.[27] Unacceptability of or objection to tax law enforcement methods, in contrast to prohibition, marijuana or morals law enforcement, does not play a significant role. The reasons for the general acceptance or tolerance of tax enforcement policies lie in their broad respect for privacy and their largely non-stigmatizing imposition of penalties.

Tax law enforcement relies principally on a system of voluntary self-assessment. Audits and investigations rely almost exclusively on formal records of transactions, a paper trail which can be followed without intrusion into intimate personal or private affairs. Where personal records are searched, e.g. bank records, notice to the depositor is required.[28] On the whole the tax code is based on the wise policy that tax payers in a self-assessment sytem are entitled to confidentiality.[29]

The imposition of penalties is also guided by privacy concerns and avoids stigmatization of non-criminal offenders. Unless tax evasion involves criminal fraud the IRS does not publicise them even though some critics argue that tax payers who commit civil fraud should be treated as having given up their right to privacy. As long as a case is administratively settled there is no publicity at all because the statute bans disclosure of tax retrun data except as authorized by the President.[30]

Regardless of the substantive reasons for any decline in societal support for the tax laws enforcement procedures have on the whole continued to be successful in coping with the new dimensions of evasion and avoidance. The deterrence effect of effective enforcement, i.e. likely detection, contributes, in turn, to compliance: the probability of detection is great only because the great majority obey the law. The nature and methods of tax law enforcement have thus not undermined further what may be decreasing societal support.

ANALYSIS and EVALUATION

The implementation of prohibition, marijuana, morals and tax laws shows how crucial public support is to the effectiveness of laws in regulating conduct, in particular non-public conduct. Lack of societal support in such cases is based on a combination of disbelief in the putative public good the law pretends to serve and the contention that enforcement intrudes too deeply into a protected realm of privacy.Insistence on governmental respect for personal liberty is based on fundamental values of American politics and solid legal and constitutional concerns. Philosophically the appeal to personal liberty in the context of drug, alcohol or morals conduct laws rests on the strength of J.S. Mill's classic argument that governmental legislation is never justified to protect a person from harm to himself when his behaviour is purely consensual and solitary. "His own good,either physical or moral is not a sufficient warrant."[31] With the exception of tax avoidance where personal liberty claims have been less successful for equity reasons--one man's freedom from taxation is another's tax burden--the appeal to personal liberty has often been a potent rallying cry against laws whose enforcement is premised on interference with private life choices without serving a countervailing public good.

The four case studies demonstrate the complexity of the relationship of enforcement to public acceptance of law.They confirm the close relationship of societal support and enforceability.But the studies also demonstrate that the impact of public resistance on enforcement is not one-dimensional or unilinear. Of the four cases prohibition had characteristics which should make it an ideal case for effective enforcement. Prohibition was written into the Constitution, supported by federal statutes and enforced by the executive branch with heavy appropriations from Congress. Courts repeatedly upheld its constitutional validity.[32] Enforcement nevertheless proved impossible. The U.S. tax system, on the other hand, presents a less than ideal case for effective enforcement. When commentators politely speak about "tensions between the taxpayer and the IRS" they acknowledge the fact that taxpayers are going to some length to escape taxation. While specific reasons for tax resistance or avoidance have differed over time, antipathy to taxation has a long and "honourable" record.[33]

Recent increases in tax avoidance or tax protest have been significant enough to lead to Congressional investigation. In response the IRS is studying ways of making enforcement more effective. Yet despite these concerns it is still true that the record of known evasions is quite small and the overall effectiveness of enforcement impressive. The comparison of enforceability of tax and prohibition laws thus presents something of a paradox: effective enforcement where resistance is of long standing and sustained and a total collapse of enforcement where support, at least initially, was strong and effective.

An explanation of these differences lies in part in the nature of the enforcement process itself. The experience of prohibition, marijuana and morals law implementation strongly supports the conclusion that the character of the enforcement strategies themselves contributed powerfully to the eventual resistance to these laws. Though no longer remembered in context it was the conviction of Roy Olmstead and several accomplices for bootlegging on the basis of incriminating evidence obtained by wiretap which led to Justice Brandeis' famous exhortation against the "pernicious doctrine...that in the administration of the criminal law the end justifies the means."[34] While Brandeis' arguments on the illegality of wiretapping was not persuasive to a majority of the Supreme Court, his conclusion that "[i]f the government becomes the lawbreaker, it breeds contempt for law"[35] has been generally accepted. It reflects the current concern over the harm done to law enforcement personnel and institutions as well as respect for law generally when government "breaks the law."

Where legal prohibitions attempt to reach voluntary private behaviour carried out largely in non-public arenas enforcement strategies are most likely to rely on intrusive investigative methods. In order to gather evidence of violation of morals or drug laws, for example, enforcement officals typically have to infiltrate the place where such conduct occurs, rely on informers or cooperate with criminal suspects. To enforce morals laws vice squad officers loiter in public baths or notorious bars, waiting to be propositioned . Although such police strategies are unavoidable in the enforcement of morals laws they are generally considered unsavory and destructive of police credibility. The opportunities for corruption such enforcement strategies offer are well documented.[36]

The enforcement of laws prohibiting the use and consumption of alcohol and marijuana provoked persistent conflict over the reach of privacy protections and restrictions on search and seizure. In fact such laws could not be enforced without threatening constitutional guarantees. "[T]he creation of a multitude of officers whose duties are almost wholly those of search and seizure," one contemporary author of a textbook on prohibition remarked, "are some of the important factors which have caused the subject of search and seizure to assume an importance scarcely dreamed of a few years ago."[37] Marijuana and morals legislation have caused nearly identical institutional and constitutional problems.

As courts are confronted with an avalanche of cases challenging enforcement methods and strategies, judicial decisions become another crucial factor in molding public support or resistance to law. Judicial invalidation of laws which police can only enforce at the price of violating due process guarantees and individual rights of privacy then becomes a further element of the failure of enforcement. Although not made in the context of one of the areas directly discussed in this paper Justice Harlan's opinion in Poe v. Ullman states most succinctly the judicial rejection of laws which rely for their enforcement on methods anathema to civilized society. Harlan declared unconstitutional a Connecticut statute prohibiting the use of contraceptives, because he found the "choice of means" required for its enforcement unacceptable.[38] Harlan's rejection of the means was accompanied by an explicit acknowledgement that the end, regulation of the "moral welfare of its citizenry," is a legitimate interest of the state.[39] Regardless of the legitimacy of law the enforcement it necessitates may thus undermine it.

The enforcement of tax laws, by contrast, has not suffered from a stigma comparable to that of drug or morals law enforcement. The reason for this difference is most fundamentally that tax collection does not depend to any significant extent on intrusive investigative methods. Contrary to popular perception tax law enforcement does not primarily rely on voluntary compliance of tax payers to report their personal income transactions fully and truth fully, i.e. the IRS does not have to investigate personal and private choices. Instead the IRS collects most of its taxes at the source through wage withholding: it relies on public records and not private solitary compliance. It is, therefore, not surprising that a full ninety-seven to ninety-eight percent of reportable wage and salary income is in fact reported.[40]

Where the IRS does depend on actual self-reporting, as it does for interests, dividends, pensions and capital gains etc., compliance and the success of enforcement drop off dramatically. Other significant types of income, e.g. unrealized gains in property values or certain types of barter, are not taxed. The reason is not that such income is not taxable under economic benefit theories or on equity grounds but that such taxes cannot be administered efficiently. The difficulty and intrusiveness of IRS attempts to asses such income increases each year and collect taxes for them are regarded as disproportionate to its possible benefit. Such policy choices assure that income tax collection depends for the most part on "taxable events" and "transactions" and only tangentially on investigations of areas protected by privacy expectations.

The differences in the effectiveness of the enforcement of tax laws on the one hand and morals, marijuana and prohibition laws on the other hand may thus be as much caused by difficulties in enforcement as they are attributable to lack of societal support. Assuming that all laws which attempt to regulate or sanction private conduct in American society will meet significant resistance, the differential capacity of government to enforce such laws appears to vary with the extent to which enforcement must intrude into private and personal spheres.

The lack of public support on the basis of libertarian and privacy values and the unsavory and constitutionally suspect methods of enforcement explain why legislation prohibiting alcohol and marijuana consumption or proscribing certain sexual conduct have not been very successful. In the case of tax collection, by contrast, the weakness or lack of societal support has not prevented effective enforcement because tax collection does not depend on strategies in themselves unacceptable.

Two additional reasons for non-compliance and corollary enforcement problems are more narrowly applicable to the tax and marijuana laws respectively. Some of the increases in tax avoidance are attributed to the incomprehensible complexity of the tax laws. A first type is the complexity of the tax law and regulations themselves. A second type is the complexity of properly filling in the required tax forms and returns. A final type of complixity is the record-keeping requirement.[42] The current drive for the simplification of the tax system is an explicit legislative response to that source of difficulty of tax collection. There is virtually no evidence that lack of comprehension of the underlying legislative scheme or complexity could similarly explain non-compliance with prohibition, marijuana or morals laws.

There is, finally, some evidence that the readiness of state and federal governments to modify or abandon the enforcement of marijuana penalties resulted from its impact on the middle class. As the number of arrests and convictions of middleclass users rose the costs of reliance on legal sanction to create compliance were reassessed. When President Carter announced his position in favor of penalty reduction for marijuana users he expressed his concern over the arrest of four hundred thousand to four hundred and fifty thousand Americans within two years. The President remarked, moreover, that "[t]hese were individuals who in other respects were normal law abiding citizens." President Carter's concern reflects the fact that any law criminalizing what is widespread "normal" middle class conduct is likely to meet powerful opposition.

Conclusion

If the difficulties of enforcement of prohibition, marijuana, morals and tax laws are not unique to those laws, then any legislation prescribing or proscribing the uses of the new technological property should be concerned with the degree of public support for the goals of such policies. Since opinion polls tend to show a significant degree of private user resistance to restrictions on copying of software or video programs public support and compliance promise to be salient issues. The fact that users are at this point mostly middleclass might make enforcement of penalties particularly difficult. The degree of "innocent" non-compliance with any regulatory scheme is likely to be directly related to the complexity of such a scheme.

Another primary area of concern must be on how and by what methods such laws can be enforced. Since copyright protections are basically self-executing under current law the establishment of a regulatory sytem or any other enforcement scheme raises an entirely new set of issues. By definition any imposition of sanctions on different kinds of personal uses would have to affect areas protected not only by privacy and Fourth Amendment guarantees but also shielded by First Amendment protections. The difficulties of creating an enforcement scheme unobjectionable on legal and political grounds are formidable. Without the design of an acceptable enforcement scheme the already weak public support for restrictions on the use and availability of the new technologocal intellectual property may decline further.

FOOTNOTES

1. For a general discussion of the role of law, see L. Fuller, The Morality of the Law (1964); H.L.A. Heart, The Concept of Law (1961); E. Schur, Law and Society (1968).

2. M.S.Eisenhower, The Rule of Law. An Alternative to Violence.A Report to the National Commission on the Causes and Prevention of Violence (1970), p.xix.

3. H.Packer, The Limits of the Criminal Sanction (1968).

4. On "Prohibition" see, generally, J.Gusfield, Symbolic Crusade: Status Politics and the American Temperance Movement (1963); J.H.Timberlake, Prohibition and the Progressive Movement, 1900-1920 (1963); C.Vose, Constitutional Change (1972), chaps.4 and 5.

5. See, generally, A.D.Hellman, Laws against Marijuana: The Price We Pay (1975); National Governors' Conference, Marijuana: A Study of State Policies and Penalties, 3 Vols.(1977)

6. See, Packer, Criminal Sanction; S.H. Kadish, "The Crisis of Overcriminalization," 374 Annals 157 (1967).

7. See, Asimov, "Civil Penalties for Inaccurate and Delinquent Tax Returns," 23 U.C.L.A. L. Rev. 637 (1976); Cooper, "The Avoidance Dynamic: A Tale of Tax Planning, Tax Ethics and Tax Reform," 80 Colum. L. Rev. 1553 (1980); IRS, The Role of Sanctions in Tax Compliance 2, Sept. 1968 (unpublished).

8. Vose, Constituional Change, chap.4.

9. Gusfield, Symbolic Crusade.

10. Bernard Hershkopf, cited in Vose, Constitutional Change, p.99.

11. A.L. Asher, The Law of Search and Seizure (1926) is an entire volume of search and seizure cases decided since the beginning of prohibition.

12. See, e.g. Tumey v. Ohio, 273 U.S. 510 (1927).

13. Vose, Constitutional Change, p. 103

14. Report on the Enforcement of the Prohibition Laws of the United States. Report No. 2 of The National Commission on Law Observance and Enforcement (Wickersham Commission), 1931.

15. Voluntary Committee of Lawyers, Statement of the Board of Managers, 1931, in Vose, Constitutional Litigation, p.107.

16. See, generally, National Commission on Marijuana and Drug Abuse, Marijuana: A Signal of Misunderstanding (Shafer Commission),1972.

17. National Governors' Conference, Marijuana,p.5.

18. National Commission, A Signal of Misunderstanding.

19. National Governors' Conference, Marijuana, pp.xi-xii.

20. Hellman, Laws Against Marijuana (Preface).

21. Ibid.,pp57-166.

22. Packer, Criminal Sanction; Kadish, "Overcriminalization."

23. Eisenhower, The Rule of Law, chap. 23.

24. See, generally, J. Skolnick, Justice Without Trial (1967); A. Niderhoffer, Behind the Shield: Police in Urban Society (1967).

25. Eisenhower, The Rule of Law, p.556.

26. Between 1978 and 1980 the number of illegal tax protester returns identified by the IRS increased 156 percent. Hearings, U.S. House of Representatives, Committee on Government Operations, IRS Response to the Illegal Tax Protester Movement,

97th Congress, 1st Sess., 1981. Tax lawyers draw a distinction between tax avoidance and tax evasion. Tax avoidance involves the minimization of tax liability through recognized loopholes in the tax law, whereas tax evasion involves the non-payment of taxes for which there is no legally recognized excuse. Tax protesters are regarded as tax evaders rather than tax avoiders.

27. Asimov, "Civil Penalties for Inaccurate and Delinquent Tax Returns," 23 U.C.L.A. L. Rev. 639 (1976).

28. Tax Reform Act of 1976

29. Asimov, "Civil Penalties,"p.667.

30. Int. Rev. Code of 1954,@ @ 6103, 7213.

31. J.S.Mill, On Liberty (1948),p.8.

32. The United States Brewers Association and the distillers initiated numerous challenges of the validity of the Eighteenth Amendment. Seven of these cases were joined together for argument in March 1920 and decided together. The Court concluded that the Eighteenth Amendment and the Volstead Act were valid exercises of national power by Congress. The first listed case was *Rhode Island* v. *Palmer* but the Official reporter grouped all seven together as *National Prohibition Cases*, 253 U.S. 350 (1920).

33. Hearings, U.S. House of Representatives, IRS Response, note 26, supra. Hostility to taxes did not end with the revolutionary War and the new government prudently imposed taxes only as a temporary measure. Taxes were not continually levied until the Civil War.

34. *Olmstead* v. *U.S.*, 277 U.S. 438 (1928).

35. Ibid.

36. Eisenhower, The Rule of Law, chap. 23.

37. Asher, Search and Seizure, p.2.

38. Poe v. Ullman, 367 U.S. 497 (1961).

39. Ibid.

40. Hearings, U.S. House of Representatives, Committee on Ways and Means, The Underground Economy, 96th Congress, 1st Sess.(1976), p. 76.

41. Only fifty to sixty-five percent of rents and royalties are reported. Idib.

42. Taxes Magazine, December 1980, p.816.

43. National Governors' Conference, Marijuana, p.xii.

Contract No.:533-3720.0
Exhibit A

STATEMENT OF WORK

Left unresolved, the growing complexities in the intellectual property systems may result in a greatly enhanced role for the judicial system in resolving intellectual property disputes. However, intellectual property issues are not only increasing in their technical complexity and calling for a greater scientific and technical expertise in their resolution; they are also becoming increasingly intertwined with other legal and public policy issues. Therefore, OTA, in its assessment, Intellectual Property Rights in an Age of Electronics and Information, will need to have a greater understanding of the ability of the judiciary to respond to the increased quantity and growing complexity of intellectual property issues. To assist OTA in this regard, the contractor shall write a paper, approximately 50-60 pages in length, in which she shall perform the following tasks:

- summarize the past experience of the judiciary in addressing intellectual property issues, focusing on the courts' response to developments in information and communications technologies.
- identify, describe, and characterize those problems, if any, that the courts have encountered in addressing these kinds of issues. This dscussion shall include, but not necessarily be limited to, such things as: workload, expertise, judisdictional problems, new parties at interest.
- identify, describe, and analyze any trends, to the extent that they exist, in the way in which courts have responded to and handled intellectual property issues involving information and communications technologies.
- to the extent that the contractor finds evidence that the judiciary may have to deal with an increasing number of cases involving new rights, new parties at interest, and new procredures for administration and environment, the contractor shall identify and describe the potential impact on the court system that such a burden might entail.
- meet with OTA staff and other contractors to coordinate research strategies and findings.

Deliverables

Annoted outline.	April 22, 1985
First Draft	May 28, 1985
Final Draft	June 10, 1985

SHATTUCK #2

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Contract Number: 533-3720.0 / Outline

Petra T. Shattuck (043-36-5371)

The Judicial Impact of Legislation Extending Copyright Protection to Computer Software

The Copyright Act of 1976 did not expressly extend copyright protection to computer software, but the legislative history and definitional references of the Act established that "...it was clearly the intent of Congress to include computer programs within the scope of copyrightable subject matter."[1] The Software Copyright Act of 1980, the so-called "CONTU Amendments," amended Section 117 of the 1976 Act to allow for the copyrightability of computer programs, although it did not specifically enumerate computer programs as copyrightable "literary works."[2] Section 117 incorporates the recommendations of CONTU (a) that computer programs be copyrightable, (b) that the new Act apply to all computer uses of copyrighted programs, and (c) that owners of copyrighted programs be allowed to copy those programs to the extent necessary to use them effectively without incurring liability for infringement.

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[1] National Commission on Technological Uses of Copyrighted Works, Final Report (Library of Congress, Washington, D.C.,1978), p.16 (Hereinafter CONTU Report).

[2] Baumgarten; "Copyright and Computer Software, Data Bases & Chip Technology," Proceedings, 8th Annual Copyright Law Conference (Washington, D.C., 1985) p.289.

Additional legislation dealing with such "new technology" subjects as commercial lending rights, semiconductor chip protection, home taping, cable copyright, "work-make-for-hire" or computer software piracy and counterfeiting penalties has been enacted or is under consideration.

Not unpredictably the 1976 Act and its 1980 Amendments left a multitude of questions unanswered. While proponents and opponents of the copyright legislation so far enacted may disagree over the desirability or need for extending copyright protection to computer software, there is little disagreement on the fact that the new legislation raises as many questions as it answers. Given the immense complexity of this new subject and the uncertainty of what impact the imposition of copyright protection will have on the goal of assuring public access to the new information technology or what effect it will have on the economic viability of the industry, it is hardly surprising that initial congressional attempts to extend copyright protection to computer software would leave unresolved a large number of issues.

Copyrightability Issues and the Courts

Courts will have to play a central role in resolving the questions left open by existing copyright law. In and of itself this is not a new or unfamiliar judicial task. Courts have traditionally had to interpret complex legislation both in terms of the meaning of statutory language and in terms of the harmony of congressional goals with constitutional values. Though statutory interpretation and analysis are familiar judicial functions their performance often imposes heavy demands on the resources of the judiciary. Judicial decisions defining and interpreting the provisions of the tax code are but one example of the quantitative and qualitative dimensions of that task. In the area of copyright the necessity of developing standards for "fair use" left the resolution of complex issues to courts.

There is little doubt that legislation extending copyright protection to computer software will confront the courts with tasks of large scope and difficulty. The practical value of the categorical copyright protection for computer software established by the 1980 CONTU Amendments, for example, will be determined largely by judicial decisions on the copyrightability of particular forms and types of programs and by judical definition of tne scope of the protections that will be accorded by copyright. In light of the saliency of the judicial role the impact of copyright legislation on judical institutions must be one element of legislative concern.

Less than ten years after the enacment of the 1976 protections for computer programs it has become abundantly clear that interpretation of the statute and its application in particular contexts raises familiar questions of judicial capacity and legitimacy in a new context. The volume of litigation over questions of copyrightability has increased dramatically and there is no reason to believe that the rate of litigation will decrease in the future. In light of the projected growth of the computer economy, the increased availability and variety of computer programs and their centrality for industrial, commercial, management and personal uses it is unavoidable that courts will be flooded with litigation. The rapid rate of technological innovation will make judicial decisions both more urgent and more problematic.

Such litigation will raise the problem of judicial capacity in two direct ways. One is how the already heavily burdened judiciary will be able to deal with what is likely to be a substantial increase of their case load. The other concern is substantive rather than quantitative. The need to resolve questions which call for decisions on complex scientific and technological matters raises issues of judicial expertise and qualification.

Beyond the problems of capacity lie questions of legitimacy. The last decade has provided a good deal of evidence that public support for copyright protection of computer programs is weak, if not totally lacking. One of the most knowledgeable experts on computer legislation, Jon Baumgarten, has already pointed to the twofold negative implications of the lack of public support for the enforceability of copyright protection for computer software. "The first is a matter of public morality -- or more accurately, the **lack** of public morality regarding software reproduction, database intrusion, unauthorized downloading, and the like. There appears to be a rather adamant refusal in the public consciousness to accept such unauthorized uses for what they are -- theft; not game-playing to be glamorized by the media (emphasis in text)."[3]

The second problem is similarly one of public attitude. In both the software and database areas Baumgarten sees "a resurfacing of the old mischaracterization of copyright -- claims that it is an unwarranted obstacle to access to ideas and an undue inhibition on the distribution of information."[4] It would be difficult to ignore the causal relation of these two trends which "cloud the future" of copyright protection. To the extent that the lack of public support will make enforcement of judicial decisions difficult or illusory, the application of copyright protections to computer programs will affect public perceptions of the legitimacy of the courts.

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3. Jon Baumgarten, Speech before the International Publishers Association (Spring 1984) cited in H. Schwarz, "On-Line Databases: The Legal Dilemma," Business Computer Systems (January 1985), p.29.
4. Ibid.

It is the purpose of this paper (1) to outline what the dimensions of the judical task of interpreting and applying copyright protection to computer programs and computerized databases are likely to be and (2) to evaluate whether the demands imposed on the judiciary by such copyright legislation are likely to be so large in scope and novel in substance as to raise serious questions about the ability of the courts to perform their vital adjudicatory function in this context effectively.

Already existing copyright legislation raises a sheer infinite number of definitional problems which call for the interpretation of statutory language and its application to new technological and scientific processes and concepts. The questions which have been raised so far and those which are likely to be raised in the future can be organized in several categories.

1. The courts will have to interpret (a) the meaning of the statute and (b) decide whether so interpreted the statute meets constitutional values and standards.

(a) Examples of the definitional and interpretive questions raised under the 1976 Copyright Act and its 1980 Amendments are

- what constitutes "private," "personal," "home," or "hobbyist" use?

- what is a copy and what is an adaptation?
- when is one program a copy of another? when is an adaptation merely trivial?
- who has the burden of proof?
- are computerized databases computer programs as defined under the 1976 act?
- when is pre-existing data selected, coordinated or arranged in such a creative way that the resulting work as a whole constitutes an original work?
- should the conventional fair use doctrine be applied more broadly to uses of compilations and "works of diligence" than to more "creative" works?

(b) Examples of the Constitutional issues raised by the extension of copyright protections to computer softprograms are

- whether computer programs protected by the Act are "writings" in the constitutional sense?
- the viability of distinctions between the program portion and the machine design portion of computer programs ?
- whether open-ended copyright protections for all computer programs at all stages stretch the meaning of "author" and "writing" under the Copyright Clause?
- whether there is a point or part of computer programs, e.g. the machine instructions, at which copyright can no longer be considered to protect human communication

(Hersey dissent of the CONTU Report)?

- whether computer-created works are copyrightable, i.e. can computers be "authors" under the Copyright Clause?

2. Judicial interpretation of statutory language and application of copyright to specific software or electronic databases invariably entails judicial determination of the fit between the uses of a statute and its underlying congressional purpose.

Examples of issues where judicial resolution of particular questions will be based on the courts' understanding of how underlying legislative policy goals are to be realized in a specific context are

- at what point do the transaction costs of registration become so cumbersome and so expensive as to negate the benefits of copyright?
- does the public's need for information ever overcome copyrightability of compilations -- however creative -- which are based on public facts that are not copyrightable?
- how would greater economic concentration in the computer and software industry,if caused by copyright requirements, affect the underlying legislative goals of the 1980 Amendments?
- is allocation of copyright ownership to employers in works

created by employees supportive of legislative goals of maximizing creativity?

3. As the Copyright Office becomes the central institution responsible for copyright registration and administration, courts will have to resolve issues of regulatory policy. To the extent that registration of computer programs and computerized databases will necessitate the adoption of new procedures and policies by the Copyright Office that agency's substantive decisons and rule making process are likely to be subject to extensive challenges before the courts.

Examples of the administrative and regulatory policy issues of computer program and database registration are

- to what extent -- if any -- does the principle of "automatic copyright" eliminate formalities of copyright registration and notice?
- what are the limits of registration claims for unpublished work?
- must computerized databases which change daily be registered for copyright each day?
- does frequent registration of databases force compilers to make too much material public too frequently?
- does the mere use of copyright notice forfeit trade secret protection?

4. Unavoidably, enforcement of copyright in computer programs will involve courts in adjudication over the enforcement process itself. Since it is likely that computer copyright protections will be less self-executing than traditional copyright, new enforcement schemes will become necessary for the application of both criminal or civil sanctions. Investigation of suspected violation will affect areas protected by privacy expectations and Fourth Amendment guarantees ~~but~~ and is likely to come within the reach of the First Amendment protections.

Examples of enforceability questions are:

- who /what agency has responsibility for enfrocement of criminal sanction provisions of legislation punishing willful infringement of copyrighted computer programs?
- what are permissable forms of investigation and detection of unauthorized use?
- are any areas or fields of personal, private or commercial use shielded from investigative intrusion?

5. Courts will be centrally involved in the imposition of remedies. The need to evaluate, for example, the extent of damgages for infringement on compilations of data as opposed to damages for the adaptation of computer programs or the counterfeiting of entire new programs will impose a formidable calculus of economic costs and benefits on the courts.

6. In addition to the new substantive questions it imposes on courts federal legislation providing for copyright protection or the imposition of civil or criminal penalties for infringement will raise familiar issues of state-federal jurisdiction and federal preemption.

Examples of questions not resolved by the 1976 Act are

- the reach of federal preemption of state common law or statutory protections of rights, e.g. trade secret law
- the preemption and/or nullification by the Copyright Act of state or local public filing requirements for software that include confidential matter?

Confining Conditions of Judicial Decision-Making

In resolving the manifold complex issues left open by current copyright legislation courts will have to decide issues of paramount importance. They will have to do so in the context of imperfect information about the course of technological change, of doubt about the economic consequences of computer copyright, of lack of public support or understanding and in the absence of comprehensive legislation.

Courts are traditionally backward-looking institutions, "well equipped to see the past and present fairly clearly, and ill-equipped to gauge the future."[5] They are committed to attending to the unique facts of the litigant's case, while they are at the same time confronted with the need to create coherence and consistency through decisions dealing repetitively with recurrent fact patterns and legal problems. As they decide computer copyright issues in the narrow context of specific cases courts cannot avoid sitting as planners choosing among options for the future.

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[5] Horowitz, The Courts and Social Policy (Washington, D. C. 1977) p.284.

As planners courts work in a less than ideal environment and work with less than perfect tools: They cannot set their agenda for action and they are bound to procedures limiting their own access to information. They make decisions in an adversary process which may provide them with information weighted by the unequal resources of the litigants and unlikely to represent the public interest fully. They have at their disposal no feedback mechanism for routinely assessing the social or economic or scientific consequences of their decisions. They must rely on traditional language and concepts not easily susceptible to being applied to the novel issues created by new technology. As the U.S. Court of Appeals for the Second Circuit remarked in a case involving copyrightability of computerized databases: "Copyright law and compilations are uneasy bedfollows since `the very vocabulary of copyright law is ill-suited to analyzing property rights in works of non-fiction.'"[6]

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[6] Eckes v. Card Prices Update (Summer 1984).

The sheer size and difficulty of the task imposed on the judiciary by the extension of copyright to computer software may put the courts in a position of vulnerability and inadequacy. Although observed in a different substantive context, Alexander Bickel and Harry Wellington's assessment of the limitations of courts in resolving complex policy questions in the past may be prologue to the future of computer copyright litigation: "The point is that the courts will draw from a body of experience not germane to the problem they will face. Given their limited means of informing themselves and the episodic nature of their efforts to do so, they will only dimly perceive the situations on which they impose their order....All this will not only, by its sheer volume, divert the energies of the courts from their proper sphere but will also tend to bring the judicial process into disrepute by exposing it as inadequate to a task with which it should never have been entrusted."[7]

In assessing the judicial manageability of computer copyright litigation this paper will focus in particular on (1) the strain of increased litigation on judicial resources already short on machinery and staff, (2) the problems of enforcement posed by lack of public support for computer copyright and the existence of constitutional barriers to intrusive investigation, (3) the suggested need for the creation of special "science" courts or agencies to deal with the novel and complex questions of computer technology and (4) the suitability of the adversary process of adjudication for tasks demanding substantial forecasting and monitoring of broad social-scientific developments.

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[7] Bickel and Wellington, "Legislative Purpose and the Judicial Process: The Lincoln Mills Case," 71 Harv. L. Rev. 1 at 25 (1957).

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